

Vol 7 No 2

The Australian

COMMODORE and AMIGA REVIEW

February \$3.50*

Future Directions



C64 Productivity - Timeworks software reviewed

Did we miss out? - 1581 DigiSwitch Amiga hardware

Data encryption

Hints and Tips

Latest games

The Essence of Platinum!

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- Clipboard Compatible
- Cartridge Font support
- 512K Required
- Not copy protected
- Free Technical Support
- User Friendly Manual

The Works! Platinum Edition

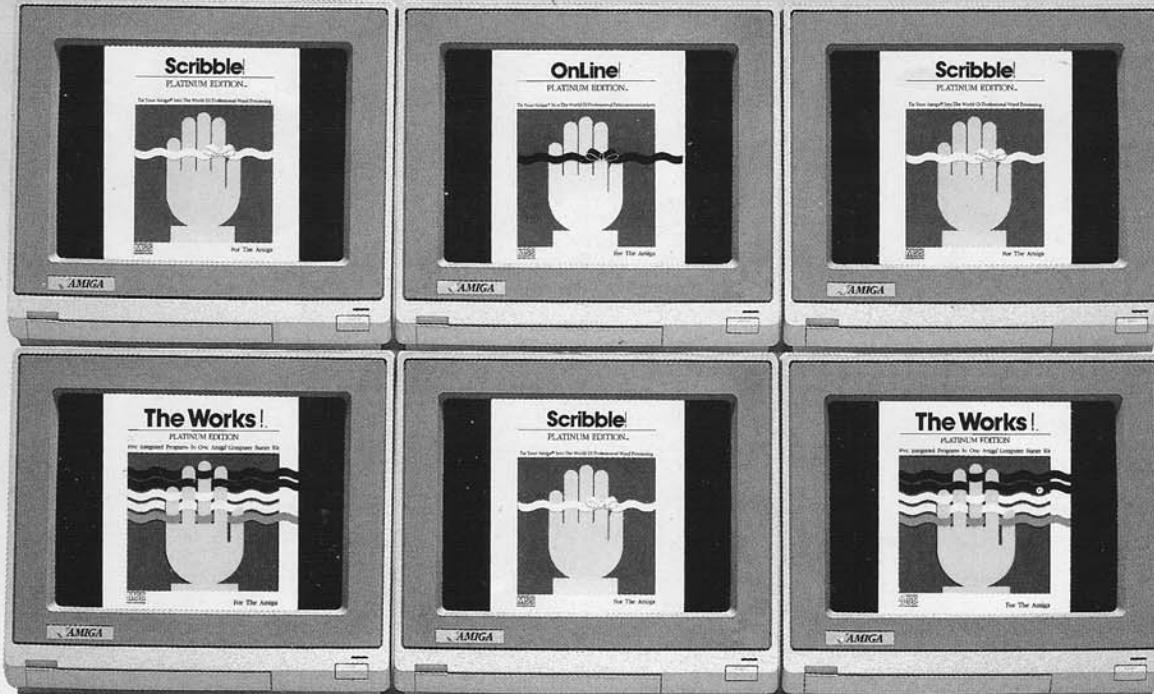
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- Includes OnLine! Platinum module
- Clipboard Compatible
- 512K Required
- Not copy protected
- Free Technical Support
- User Friendly Manual

OnLine! Platinum Edition

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- New Sadie Protocol (simultaneous chat and 2-way file transfers)
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The Australian **COMMODORE** and Amiga Review

VOL. 7 NO. 2

February 1990

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Editorial

Just before the end of last year, I had the opportunity to enjoy a preview of Commodore's marketing plans for 1990. A number of Australian software distributors were also present - and it was to these companies the presentation was directed.

How refreshing it was to see solid direction from Commodore. The new marketing team are more professional, more enthused and more interested to hear other people's opinions than ever previously. Most interesting was the move to promote specific applications of the Amiga including Desktop Video, Desktop Publishing, Networking, Education and Desktop Presentation.

Many past problems are now, it seems, being addressed. Of course, that is not to say things are perfect yet. Last year's holiday buying period saw a world wide shortage of Amiga 500s and in Australia, Commodore 64s. No one guessed the demand would be quite so high. In Australia there are now over 70,000 Commodore Amigas, with the world wide figure pushing the 1.5 million mark. The Australian Amiga market is very healthy, which should mean better support from overseas companies who are slowly realising just how much software and how many peripherals they really do sell down here in Australia.

New machines are planned for the first quarter of this year - we believe these to be similar in specification to the Amiga 3000 previously mentioned in these pages. Workbench 1.4 continues to draw closer and we plan to provide a complete preview as soon as possible.

Fresh blood is always a welcome change - so as usual, we once again call on any writer interested in contributing to *The Australian Commodore* and *Amiga Review* to contact our editorial offices. □



Andrew Farrell



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It's fast, logical in operation, exceptionally easy to use but amazingly rich in features. It is designed for the Amiga user who wants to put on paper, and do it professionally. Among its many features are Table of Contents generation, Index generator, calculations within a document, access to printer fonts, ability to include graphics, mail merging and more! When you're ready to write, you're ready for BECKERTEXT!

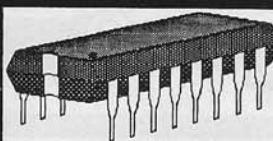


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Ram Rumbles



Parallel import action lost!

• Action by Imagineering against ComputerMate Products alleged parallel importing of Amiga title *Dragon's Lair* has failed. So much for grey marketing - it appears the confusion continues to rest with the interpretation of copyright laws and distribution licensing agreements. No doubt the next few months should see this matter clarified further.

Early indicators appear to lean toward a decision in favour of companies who have been so-called grey marketeers. To our knowledge, none of these companies are involved with piracy in any form. The products they distribute are purchased through legitimate overseas distributors. Of course, the question remains with regard to a number of products as to whether the importation of such contravenes local distribution licenses, and whether any restriction then imposed contravenes overseas trade laws.



New ad campaign - success or failure?

• Amiga animation was the theme of Commodore's Christmas advertising campaign. A brief, action packed ad, which ran primarily during such high rating shows as *Neighbours*, was intended to capture the consumer's imagination in the same way Atari hoped a kid sitting beside a static screen image was supposed to sell 520STs. Well, compared to the Atari ad, there was no competition. But are Commodore plugging the Amiga the best way possible? We would like to hear your opinion... Write in and let us know how you would sell the Amiga or Commodore 64!

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Update

WHAT A MONTH!

To say I am excited, would be to put it mildly! At Pactronics we have just released WEST PHASER. This has got to be the most stunning package for the Amiga and PC that I have ever seen. This package contains an interactive gun with the most incredible game based on the "Wild, Wild West". This game is in my humble opinion worth \$100.00 on its own, that is without the gun; and with the gun, it would obviously be worth a lot more. However, BELIEVE IT OR NOT, the total package retails for only \$89.95. Incidentally, further games for this should be available within weeks, including CRAZY SHOTS and later on MOON BLASTER.

As if all this weren't enough, we have also released OOZE - CREEPY NITES, which is horrifyingly good fun; and PINBALL MAGIC - this is a multi-level pinball game with all sorts of "fun" ways of getting level to level.

"Best Thriller of the Year" - Commodore Computing International - It's MURDER ON THE ATLANTIC! And I have to agree. Sail on a voyage of intrigue and murder as your vacation turns into a cruise of survival, horror, and suspense. Only your logic, determination and skill can solve this hideous crime (dozens of clues and even your own magnifying glass are supplied).

After all this excitement, I should also mention that SNOOPY, our favourite doggy character from "PEANUTS" is now available on the Amiga.

Just to re-cap, WEST PHASER is available on Amiga (500/2000) and PC; OOZE is available on Amiga and PC; and MURDER ON THE ATLANTIC is available on C64, Amiga and PC.

Hope I'll be calmer next month!

P.S. EXCITEMENT for you! BUY any of the above this month and get absolutely FREE "HOLIDAYS AND SEASONS". Just send in your receipt to:

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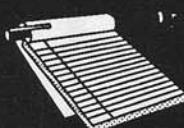
A huge software base that's constantly growing to keep pace with the latest in technology and knowledge.

Plus a whole range of other uses including graphics, animation and synthesized sound.

If you're clever enough to buy an Amiga computer, imagine the boost it will give your child's education.


Commodore

Notepad



Notepad

Leopardskin Amigas

• As the price of Amiga 500s tumble in Germany, Commodore is looking for ways to improve the base model. A limited run of 4000 models were produced which included an in-built Genlock. Another run of 2000 units had patterned decorations, including fake leopardskin squares.

Over the phone advice

• Master Systems, convinced that the world is full of disgruntled consumers who can't find the right advice from their local department store, have set up a free HELP-LINE. The number to call if you need help is (03) 720-6509.

They figure if they can convince you they have the right advice, hopefully you'll pay their store a visit. Now that's what specialist dealers are all about.

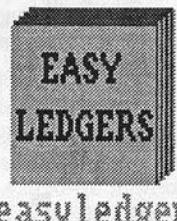


ProPage delayed

• Professional Page 1.3 seems to be terminally delayed - on our last call to the offices of Intouch Tutorials, the Australian distributor, we were still unable to acquire a review copy. Advertisements for the product in US magazines have been running for



some months. We begin to wonder whether the Beta version has been more bothersome than expected.



EasyLedgers price drop

• According to Sybiz, EasyLedgers has enjoyed greater than expected success in the US. As a result, development costs have been more quickly amortised and the local price has been lowered from \$995 to \$595.

Sybiz offer extensive support for their local product, which is now very competitively priced. For information call (02) 816 3111.

Commodore US Amiga ad campaign

• Harry Copperman, the latest managing director of CBM US, seems to have taken the bit between his teeth. He's bringing in ex-Apple people to work on improving Commodore/Amiga's image, and spending up big on ad campaigns, to the tune of about \$17 million over the last part of the year. Likewise there are signs here of Commodore becoming more active in promoting the machine, with software competitions and other approaches. Go for it, I say, and keep up the momentum.

SuperAmigas available in OZ!

• A3001 GVP Accelerator For A2000 is not just an Accelerator, but the Accelerator, and it will be for some time. GVP seems to be ahead in the hardware stakes, and have a professional approach to quality and supply, so if you want your Amiga to scream, this is the way. Specs include: 25MHz 68030 CPU

and 68882 FPU (Floating Point Processor, or Maths chip) with Burst Mode 32-bit memory; up to 8MB of Nibble mode 32-bit DRAM memory; built-in hard disk controller on 32-bit bus keeps all A2000 slots free. I want one. Contact the local GVP distributor, Power Peripherals, for more information on (03) 369 7020.

GVP's removable 44megabyte cartridge drive

• This is the Impact S44 SCSI 5.25" half-height unit with an average access time of 25 millisecs. It boots under Kickstart 1.3, and looks like the answer for anyone needing unlimited storage and flexibility, say for creating huge animations that have to output on other systems. It behaves well with all accelerator boards.

Amiga DTP out-performs Mac!

• Currently, the Amiga is the only PC which can do the artwork for an entire colour magazine - this is via Professional Page, which lets you do colour separations of pages with Bitmap graphics. (That is, when you want to get your printer to print a bunch of colour pages, you provide him with four pages from your laser or Linotronic which contain the information necessary to combine the colours in the right proportions in the finished page.) Neither IBMs nor Macs can do this - the Mac products that support colour separations either do not support bitmaps, or don't support page layout.

Low cost postscript laser printer

• Mitsui put out their Ricoh 6000 PS which comes standard with 2 meg of ram, upgradable to 4, has the usual 35 fonts, has single sheet feed and an optional extra

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paper tray for up to 500 sheets, works fine with the parallel port and is small and neat. Retails for around \$6500 for those interested. Mitsui (02) 452 0452.



Ricoh 6000 PS

AMAX patch for hard drives

• This is a valuable shareware program for anyone who runs the AMAX Emulator and a hard disk. Put out by Interactive Video Systems, it provides Amax/hard disk compatibility for those who use that company's TrumpCard. Should be available as you read this. Likewise, ReadySoft, who produce the AMAX, are talking about Version 2, which should have hard disk support built-in, along with AppleTalk support and other goodies.

Hints and tips for your favourite computer

• Dean Corish, an Amiga dealer in Bathurst (Naycora Computers) has published a book

which gathers all those hints, tips, tricks and backdoors for a number of computers - all the Commodore computers including the Amiga, as well as the Atari. Distributed by Pactronics (02) 748 4700.

More music programs coming

• It seems that because of the Amiga's video capabilities, it is becoming recognised as a serious music machine (music videos). As a result, Mastertracks Pro and more of PassPort's music software line is currently being ported to the Amiga.

Super Scanner

• Digi-View Gold 4.0 can digitize in Hi-Res Interlace mode - 768 x 480. The results are mind boggling. For a taste of what's possible, be sure to check out the new two disk set Newtek Demo Reel III, available by calling (02) 817-0011. Upgrades to the new version of Digi-View are software only, and will be available in Australia. Stay tuned for details.

New Products

• *Distant Suns* is an astronomy program that presents the night sky as most city dwellers have probably never seen it before. The screen becomes a real-

time simulation which takes complete advantage of Amiga graphics, presenting all the colour and splendour of the Milky Way. Three expansion disks are available, providing even more stars to gaze at. By pointing and clicking at stars of interest, their full glory comes into view by means of close-up photographs which are truly beautiful to behold. RRP \$79.95 from Computermate (02) 427 8118.



ProWrite

time. Sounds good! For further information call Computermate on (02) 417 8771.

• *Vorecone*, a sound recognition device for the Amiga, from Impulse has arrived. Although only briefly viewed at Computer Spot Chatswood, it appears to be an interesting unit. Wouldn't it be nice to launch applications at voice command? Watch for a full review next issue.

• Other new versions include *Perfect Sound 3.0* at \$189 and *PageStream 1.8*.

Why isn't my product listed here?

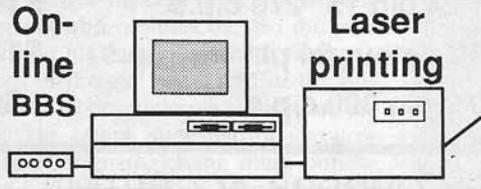
• Every month we get a selection of press information, review copies of products and tid bits of news by way of phone and mail. Combined with our own enquiries, these form the basis for Notepad each month. Information is never run "as is", but is always subject to editing, and our own opinions where statements of quality are concerned. To ensure your product is mentioned, FAX us information about it as soon as possible on (02) 816-4714.

• *VIDI Amiga*, a \$399 frame grabber which works in PAL mode and grabs images in sixteen shades. Multiple frames may be captured - depending on available memory. Brightness and contrast are hardware controllable, and you can capture frames in real

time. Thank you to Computermate and The Others for all the product information. What's everyone else doing? □

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Letters

TO THE EDITOR

GEOS Upgrade

• I am hoping you can help me with some advice about updating my C64's word processing capabilities. I have read the article in your 1989 *Commodore Annual* on word processors for the C64 but I am still unsure.

I currently run the C64 with a 1541 disk drive, an MPS 802 printer, a 1351 Mouse and GEOS V1.3 as the word processor. As you are no doubt aware the MPS 802 prints the output from GEOS using the 1526 printerdriver which prints in graphics mode and is extremely slow. Also, the GEOS V1.3 word processor has limited features.

I am considering updating my GEOS to V2.0, as a first step and possibly investing in a new printer. However, before making any changes I would like your advice on the options available to me. I like the WYSIWYG format of GEOS but do not like the slow graphics inspired printer output. Can you help?

M Garrett
Hackett ACT

Ed: GEOS V2.0 upgrades are now available, (see the Computermate ad in this issue) and the new price and improved power make this a very worthwhile purchase. Printer output on a real graphics printer such as the Star NX1000 would be much faster.

Amiga 2360 monitor

• In the December edition of the *Commodore and Amiga Review* I read about the proposed A2360 high resolution colour graphics card. I would like to find out a few things about it.

The article notes that the card will give resolutions of up to 1024x1024 and up to 259 colours. How will this affect existing software: graphics and video in particu-

lar? Will there be empty borders on the perimeters of the screen image? This leads me to another topic.

With the advent of add-ons, upgrades and other types of hardware modifications each Amiga becomes more and more customised. Who would I turn to to check the compatibility of each new component with an already-modified A2000? The manufacturers of the new component may not have tested the hardware under conditions that match the "customised" A2000; hardly their fault because of the great number of variations that exist.

I am not at this stage yet but would like to hear your point of view about this. I want to approach the problem with a bit of foreknowledge and caution. Any comments would be greatly appreciated.

M Llige
North Parramatta NSW

Ed: A special driver will enable software to use the full resolution. There will be no funny border, and you will be able to switch resolutions fairly easily. Most products do not conflict with others in any way - the Amiga's open architecture works against that but there may be odd exceptions. These are normally documented - if unsure try a User Group and talk to another user. What specific products did you have in mind?

Help - new C64 user

• I have just purchased a Commodore C64 from my father and I was wondering if there was some sort of course around that can show me how to use it properly. I have read the manuals but I don't quite understand them properly.

I would appreciate it if you would let me know.

S Psaila

Cranbourne VIC

Ed: Clubs and Associations sometimes run courses - see the listing in this year's Commodore Annual.

There are many fine books on the C64 - these are well written and should be of help.

New classifieds

• I wish to congratulate you on the quality and content of your magazine. Very few, if any can attain anywhere near your standard. Your reviews are concise and amazingly accurate, which is a credit to both you and your staff. Keep up the good work!

With regard to the comment by Paul Millward of Salisbury Nth S.A. on page 64 of the December edition I would like to endorse his suggestion of a classified section within your magazine. This idea can only foster closer ties between Amiga users and benefit the Amiga community as a whole and warrants serious consideration.

Here in Butterworth there is a small but expanding Amiga community, with eight users being members of the RAAF stationed at the Royal Malaysian Air Base. We have a Users Group going with a regular newsletter sent to each member. As the price of peripherals here is more expensive than Australia, most of our shopping is done by either contacts at home or by mail order with companies such as Computer Magic of Moonee Ponds.

In closing may I say thank you and keep up the good work, it is only through efforts from people like yourselves that the Amigas is what it is today - a well publicised, state-of-the-art machine.

P V Webster
Butterworth Malaysia

Ed: OK - Send them in - let's get it started. Send in your classifieds now for March and April!

Future Directions

An interview with Irving Gould, Commodore CEO

by Andrew Farrell

COMMODORE has reached a new plateau of product stability, company direction and management professionalism. Throughout the storm of past years crisis, a gentlemanly figure has quietly maintained a firm grip on the tiller to bring the Commodore ship to this new sea of calm.

An opportunity to interview this stately man, Irving Gould, Commodore Chief Executive Officer, is not easily passed. We met for afternoon tea at the Sydney Intercontinental. He relaxed and smoked in a comfortable leather armchair. He greeted me with a warm smile. This is the man who said "when it comes to technology, I know just enough to be dangerous".

Commodore has always been dangerous. Whilst it has made mistakes, its successes have taken the home computer market by storm. The competitors would agree - Commodore is dangerous. So, let's hear what the man behind Commodore's future direction has to say...

ACAR: Is there any truth in the rumour that we may see new 8-Bit machines this year?

Gould: No, no truth. I can tell you that we did develop a new chip and there was talk about it because our engineers did a remarkable job - it took 18 months. It's almost as good as the Amiga - lots of colours and so on. But the timing was really wrong and it wasn't 100% compatible with the old tried and true 64 - its worst enemy has been Commodore. Throughout the world we've tried to kill that sucker. This quarter, every one of our GM's around the world has under forecast. They're all terribly short of C64's. We sold a million last year, and I think we'll sell a million this year. It's going to be around for a good number of years.

ACAR: Is the C64 still being made in Germany?

Gould: As usual the boards are made in Hong Kong - we manufacture our chips in the United States, and they're assembled in the US and Germany.

ACAR: What plans has Commodore got now that the Eastern Bloc has opened up? Do you see a surge over there with

your machines?

Gould: We think so - even prior to recent events we were in the throes of starting to build a new modern facility in Germany. Our old plant was not the most efficient. This one will be modern - which will help us considerably with the Eastern Bloc countries.

ACAR: How important is the C64 market? Are they the future Amiga owners? Will we see support for them, to encourage them to upgrade?

Gould: Constantly. If you ask me what my dream is, I know there are over 10 million 64's out there. Now if I could only get half of those up to Amigas - and we stand a very good chance. We're finding that a lot of Amiga purchasers were C64 owners. They were so happy and satisfied with their C64, they're going in and buying. Not as many as we'd like. As a matter of fact, the C64 doesn't want to quit. There's still happy users out there and new software continually coming. And it's still not a toy - it's a good computer - it's the best entry level computer.

ACAR: Why in Australia did we never see products such as the 1581, extra memory and so on - will we ever see

those things here?

Gould: If you want them, all then General Managers have to do is ask for them. We don't do company forecasting. If you people in Australia wanted them, they could have them. That's a question for the local company.

ACAR: Is there a gap in your range between the A500 and the A2000?

Gould: Really it isn't necessary to have a machine in the middle. What will happen, and everybody knows that the A3000 is coming - when it comes, you'll probably see a price change in the A2000. So it will become the middle machine. As sure as God made little green Apples, there will be a 4000. Don't ask me when.

ACAR: Is the new emphasis within Australia on specific market areas a world wide strategy?

Gould: Yes.

ACAR: Where do you see the specialist dealer fitting into that plan? Is he a very important part?

Gould: I think so. One of the features, but it is also a problem for the Amiga, is it does everything. It's such a versatile machine. You have to start zeroing in on certain areas. Otherwise, you're going to



be firing the shotgun and not killing anybody.

That's what we're trying to do - video is becoming more and more important - the buzzword of the 90's is multimedia - desktop video. The Amiga is the best platform in the world for that. We have to do a better job of putting out the features. The world still doesn't really know how important multi-tasking is. Even with 256K, the old Amiga 1000 was a true multi-tasking machine. Apple and IBM are still saying they going to have it. Here we've been sitting - we've got it - it's probably one of the best kept secrets in the world.

ACAR: How do you see yourself getting back a lot of the specialist dealers you may have lost in the past?

Gould: When you see we have lost them - you win some and you lose some. There's no great loyalty in any part of the world. We see it every now and then. With most people, it's "what have you done for me lately?" We have an exciting product and exciting software - the CPU in itself only makes a good door stop - software sells computers. Hardware doesn't mean a thing.

ACAR: In the past, competition be-

tween the specialist dealer and the majors has always boiled down to a price point. The specialists have never been able to go beyond that.

Gould: Only in certain parts of the world. A good specialist, if he wants to survive, has to use some ingenuity. He's got to bundle, he has got to put a perceived value that takes him away from competing with the man that says "this is the price, take it off my shelf, don't ever come back and talk to me about it. If you want it and you want it at this price, take it and goodbye". On to the next fellow.

ACAR: What would you like to see succeed in the future?

Gould: Desktop video - multimedia. You're going to see in the 1990's a true multimedia platform. Music, graphics, video all tied in. For the corporate market, education and home entertainment. It will be desktop publishing and some of those things of the 80's, the 90's will be an extension of that. Technology is going that way - CD ROMS, laser disks and you start bringing all these things together.

ACAR: Could we expect to see Commodore start to take in some of the products such as CD ROMS?

Gould: (With a big smile) It wouldn't

surprise me.

ACAR: What about the future in general?

Gould: In the future Commodore plans to stay on the cutting edge of technology. You can expect to see some new and exciting things coming up - all probably based on some form the Amiga technology. The UNIX platform is receiving raves from university and government departments. UNIX has the potential to move MS-DOS out as the so-called standard. The latest version, 5.4 is jazzed up - it's not the old dull UNIX.

ACAR: Thank you, Mr Gould.

Gould: Now, what can you tell me about the Amiga?

Conclusions

• At the end of the interview, I felt Commodore was in good hands. It sounds like 1990 will see the arrival of some more sock removing hardware. The home computer will become closer related to the Hi-Fi and Video world and computing will be more and more practical and easier to get into. Next month we plan to jazz up ACAR with the exciting world of Amiga! □

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Let's get serious . . . with Timeworks

by Eric Holroyd

DATA MANAGER 2, *Swiftcalc*, and *Sideways* are three of a suite of business programs for home computers published by the American company, Timeworks, and made available to us for evaluation by Dataflow. Timeworks is apparently so confident of their product that they offer a 90-day money back guarantee, with the packaging carrying a message to the effect that "If you can find anything that works better we'll buy it for you. Just return our product along with a cheque for any price difference".

That's some guarantee, but after checking out the software I'll bet they've not had too many returned. The software was first copyrighted back in 1983. The fact that it's been around for so long counts for something. The current versions are refinements of those earlier efforts and the word processor software - *Word Writer* - is now up to version 4. This wasn't available to us for review at the time of writing, but Dataflow say that it'll be here soon so maybe you'll be able to read about it in the next issue.

Data Manager II

• Billed as "A Complete Information Storage & Retrieval System", *Data Manager II* offers quick access to your stored data with Report Writing, Graphic Charts, and Statistical Analysis functions. It also lets you print mailing labels. As with the rest of the suite of programs, it's designed so that it'll interface with each of the others, which means that information stored in the database (*Data Manager 2*) may be used in the spreadsheet program (*Swiftcalc*) or in the word processor (*Word Writer 4*).

Data Manager 2 comes on a single "flippy" disk complete with sample files to use as a tutorial. I found the manual easy to follow and liked its simple language. In the Introduction section the

manual explains what a *Data Manager 2* database is and how to work with it. As the whole thing is menu driven I found it quite easy to learn and appreciated its flexibility. Each "set" of information in a database is known as a "record" and may contain up to 20 lines or "fields" totalling up to 230 characters or "bytes". A data disk can hold up to 2000 records and two drive users will be happy to know that *Data Manager 2* supports them.

have another field covering each member's "Special Interest" (eg Graphics, Sound, Programming etc). The program lets you add such an afterthought quite simply, and you may also modify the length or "classification" of an existing field or delete a field altogether whilst in Field Modification Mode.

Writing a Report simply means sending your data to the printer for a hard-copy presented in the way you want it to

“One of the major features as far as I'm concerned is that you're able to add a field to your format at any time.”

Speaking of drives, Timeworks incorporates a fast loader option known as "Swiftload" to help speed up the 1541 drive. You're offered the choice of using Swiftload on the opening screen and I found that it worked very well. It conflicted with my built in fast loader - the excellent Cockroach TurboRom - so I switched that out to test loading with Swiftload, then back in to say "No" to Swiftload and let the TurboRom do its stuff. Turned out they were roughly the same, at about five times faster than Commodore's normal 1541 DOS.

Your database "fields" may hold Characters, Numbers or Dates and you're shown how to set up the different fields in the type of format you'll require by using the sample "name and address" file supplied.

One of the major features as far as I'm concerned is that you're able to add a field to your format at any time, provided that you don't exceed 20 altogether. My own experience with databasing has been that I've usually thought of something else I'd like to add after setting everything else up. An example of this could be a User Group membership file where, as well as Name - Address - Phone Number - Computer Type etc I may then decide it would be useful to

read. These Reports are done in a columnar format and you may set up and save a Report Format for future use or create a new Report Format for each type of data you wish to print. It's up to you.

You're allowed 80 characters across the page and may use up to 20 columns, which relates exactly to the number of fields allowed in a database. The sample address book file uses five columns for its Report Format: Name - City/Street - Phone - Age - Birthday. These are taken direct from the database field names and look very good when printed out.

If you're using *Data Manager 2* to run a small business - to do payrolls from personnel records for instance - and wish to keep your data safe from prying eyes, there's a Password feature which lets you set a secret password which must be entered before data may be recalled from your storage disk. Your word may be up to eight letters long, and I like to keep a written reminder of such passwords in a different room from where the computer is kept just in case I forget the word. There's no way to access the data if you do forget it! If you don't want to use the password feature you can simply override it.

There are several ways in which you may Search, Sort and Analyze your

stored data. If you're a Sales Manager wishing to check sales and salesmen's performance you can do a Statistical Analysis and even create a Bar Chart which shows in colour the frequency of, say, repeat orders from a particular customer. Then there's the "X-Search" feature which lets you cross reference selected fields of your data so that you can find, for example, all NSW residents living in Post Code areas 2145 to 2250, who have between one and three children, and were born between 11/11/51 and 01/05/73. How to do that is explained quite simply in the manual and again is a very useful feature. "X-Sort" is another handy function and lets you sort your data in increasing or decreasing order, arranged alphabetically or numerically, and even chronologically (ie in order by date).

The master disk has a number of special programs for various purposes. "INT" helps you initialize and set up a data disk, whilst the "EXTENDED PRINT" program is the one that does mailing labels and reports. Formats for labels and reports may be saved to your data disk, so that once you've set up the way you want your data to look when printed out you simply call up the format at a later date to do it again with added data. Another program, "SORTFIX", retrieves information from a data disk damaged by a power failure and yet another one ("RESET") resets the counter on your data disk to reflect the number of records stored, thus completing the file salvage operation.

GEOS users will be pleased to know that *Data Manager 2* may be run from within GEOS as it's complete with icons for the various parts of the program. Use the mouse or joystick to select and click on the disk icon as usual, then click the main *Data Manager 2* icon to load the program. You can even use your data in *GeoWrite* by using the "TRANSFER" program which will read a file and transfer it into a form that *GeoWrite* understands. It will handle a document of up to 6000 characters, or about three pages, the size being limited only by the constraints of GEOS. Once converted, the data can be "pasted" anywhere in a *GeoWrite* document.

Of course, if your *Data Manager 2* data is longer than the stipulated three pages, you can split

the file and transfer it to *GeoWrite* in sections for pasting. To split a file, simply sort some of the records in whatever way you think best then save that file for Transferring. Once that's done, you can do another sort if the file is still too big.

All in all, this is quite a powerful program which I found pretty easy to learn and use. The fact that it can be used either as a "stand alone" program or interface both with others in the Timeworks suite and with GEOS enhances its value to computer hobbyists considerably.

Best Point

- Database structure may easily be altered - fields may be extended or new ones added after you start using your database.

Worst Point

- No on-line help

Swiftcalc

• *Swiftcalc* works either as a "stand alone" program or it may be interfaced with *Data Manager II* to produce customized reports incorporating information from both. It's a "Spreadsheet" program, which means it's a kind of electronic worksheet, and it takes the drudgery out of complicated figure work by doing cal-

culations in seconds which would take hours or even days with a pencil and calculator.

Think of the screen as a viewing window which scrolls around to let you see sections of a huge worksheet of columns and rows of figures. *Swiftcalc* allows you to use up to 250 rows and 104 columns. This produces more than 25000 locations - known as "cells" - where you enter your data. Various keystroke commands let you perform mathematical functions with data and up to 12 digits are allowable.

The easiest example I can think of to use a spreadsheet is the yearly running costs of a vehicle. First set up 12 columns to represent the months, then a number of rows to represent such costs as: Fuel, Servicing, Repairs, and Miscellaneous. (If you've never used a spreadsheet before I suggest you write all this out on paper to show you just how useful a spreadsheet is going to be.) Now enter the total fuel costs for each month into *Swiftcalc*, then put the servicing costs in the appropriate monthly columns, same for the repairs, then add in any miscellaneous items you can remember. Get monthly totals and a grand total with the appropriate commands (and there's on-screen HELP so you don't need to remember these) and you'll see in a flash how much it's cost to keep the vehicle on the road each month

ALTERNATE #	1	2	3	4
DESTINATION	WISC	CLUBMED	EUROPE	HAWAII
PREF. RATING	2	10	8	7
# DAYS	5	7	15	10
# OF PEOPLE	2	2	2	2
# OF MILES	400	0	0	0
GAS COST	24	0	0	0
CAR RENTAL	0	0	0	400
AIRFARE/PER	0	0	800	700
AIRFARE TOTAL	0	0	1600	1400
LOGD/DAY/PER	30	150	85	65
LOGGING TOTAL	300	2100	2550	1300
MEALS/DAY/PER	30	0	30	30
MEALS TOTAL	300	0	900	600
SIGHTSEEING	150	0	400	300
EXTRAS & ENT	50	200	200	100
RESERVE	100	300	500	300
TOTAL	924	2600	6150	4400
COST/DAY	185	371	410	440
COST/PERSON	462	1300	3075	2200
COST/DAY/PER	92	186	205	220

Swiftcalc sample spreadsheet: "Trip"

and for the full year. Just as an exercise, do the same totalling on your paper worksheet with your calculator.

Now, here's the crunch! Let's imagine that you've suddenly remembered that you fitted some new tyres last April, had rego expenses in June and a body repair in October. With *Swiftcalc* all you have to do is enter those expenses in the right columns and press the keys for new totals immediately. Do the same thing on your paper worksheet and you'll find that it'll take ages to work up and down the columns. This is a very basic example and of course real life expenses are much more varied and complicated.

If you were to expand this example to cover ALL the expenses incurred in running your own little business (or in earning your annual salary as a commission salesman, for instance), then have more rows and columns showing profits and salaries etc, you'd begin to appreciate just what a spreadsheet can do for you. The thing is, to prepare your Income Tax return you'd have to do all that and then subtract the expenses from the profit or salary to get your Taxable Income. Again, a few simple commands do all the calculations of rows and columns easily and quickly and that's what a spreadsheet is all about.

Swiftcalc has sample files for you to use in learning how the program works. There's "Home Budget", "Trip Planning", and "Financial Analysis" on the disk and the manual takes you through them. (I must admit that I learned a fair bit from doing this myself and I'll be using this method in future, rather than the pencil and calculator.)

The "Home Budget" is very interesting and practical. It uses Categories such as Salary and Dividends to show monthly income, the Budgeted total salary, the Actual income made, then the Difference between the two. Remember Mr Micawber's views on this: Annual income twenty shillings, annual expenditure nineteen shillings and sixpence, result - happiness. Annual income twenty shillings, annual expenditure twenty shillings and sixpence, result - misery, and you'll see the value in this kind of worksheet.

The Expenses such as: mortgage, car payments, education, medical, maintenance, recreation, and food etc are shown and totalled, then subtracted to show whether you managed OK that month or spent more than you earned. Interestingly enough, "savings" are shown as an expense which I suppose is right because whatever you put away as savings comes

directly out of your income, doesn't it? Anyhow, the whole thing works very well and is a good model of how to run your own Home Budget.

Financial Analysis is a very useful tool and lets you set all the financial variables for a "what if" situation when doing projections. A family might be planning an overseas trip, for example, and setting up a spreadsheet to calculate the amount of overtime and savings required to meet the cost of air travel and accommodation would help each family member know what the target is. The "what if" would come in if each member decided to save 10% more for the next year. Just enter the new figures to get the new totals and you see straightaway how much that will mount up and bring the trip more within reach.

Businessmen know all about "what ifs", of course, they take calculated risks all the time, and a good spreadsheet calculation helps keep the risk to a minimum.

Actually working on your data entry is quite easy. There are functions to Move or Copy information from one cell to another as well as Search & Replace to locate specified information and replace it with new data. Moving around the spreadsheet is done with either the cursor keys for fast horizontal and vertical scrolling (very smooth too) or with GOTO, which puts you in a specific cell. Automatic cursor advance is used to put you in the next cell after each data entry and is a nice little feature in itself.

Three format choices are available: Graphics (for producing Bar Charts from your numerical data); Exponential Notation (the Up Arrow symbol is used to show a number "raised to a power" such as "5 squared" or "20 to the power 3"); and Decimal (up to nine places). *Swiftcalc* allows the use of other math functions too, such as minimum and maximum values, averages, sums, integers, and absolute values. If you need to calculate the Present and Future value of a dollar or other Constant Amount (for Annuities etc) you can do that too.

Built in "prompts" help you as you're working with *Swiftcalc* and there are two plastic keyboard overlays included in the packaging along with the manual and the single disk. As in *Data Manager 2* you may load the program from within *GEOS* and *Swiftcalc* data may be transferred for pasting into a *GeoWrite* document.

When a printed report is required there are two options. The first is a nor-

mal printout, as per the Trip Planning file reproduced here, whilst the second comes under the heading of "Genius" in my book. This is the *Sideways* feature which turns the spreadsheet data 90 degrees so that it prints all your columns vertically in one continuous sheet, thus obviating the need to sticky tape together several sheets of printout. This option is included with *Swiftcalc*, and is available as a separate program for users of other spreadsheet software.

Best Point

- On-Line Help

Worst Point

- 40 Column display... (Where's the C128 version?)

Sideways

● This comes on a "floppy" disk with the C-64 version on one side and the C-128 version on the other. The packaging also contains an Installation Guide as well as the nice little manual. In this context, Installation simply means setting up a "configuration file" relative to the printer you're using, which is saved back to the master disk automatically so that every time you load the program it's already set up for you to use.

Many of the popular printer interfaces: Cardco; Grappler; Xetec; Turbo Print; Tymac; etc are covered in the Guide which also covers selection of: Printer; Number of Data Bits; and Device Number. It states compatibility with "third party" spreadsheet software such as: Better Working Spreadsheet; Calc Now; CalKit; Creative Calc; Microsoft Multiplan; Practical; *Swiftcalc*; Syncalc; and Trio; also saying that it'll work with any C-64 or C-128 spreadsheet software that creates ASCII text files on disk, or that will interface with any *Sideways* compatible word processor.

Most type of graphics printers are supported, including: Epson; Star Gemini; Commodore 1525, 1526, MPS 801 - 802 - 803; Okidata; Prowriter; Mannesmann Tally; Hewlett Packard Thinkjet; NEC 8023; and some Texas Instruments & Micro Prism printers too.

Before using *Sideways* for a printout you need to use your spreadsheet's "print" command to create a "print file" on your data disk. You'll need to give this file a name and the manual wisely points out that you shouldn't give the print file the same name as the spreadsheet file otherwise it'll be overwritten. Instead,

they suggest that you use the same name but with the suffix ".prf" added. That way you can tell from looking at the disk directory which file is which and there's no danger of overwriting one with the other.

There are many options to select from before sending the print file to the printer, such as: Double Strike (gives a Bold effect); Character Spacing (set number of chars per inch); Line Spacing (number of lines per inch); and Character Font (from Tiny to Extra Large). Then you can set: Left, Top & Bottom Margins; plus Vertical & Horizontal Paper Size. I liked the idea too of being able to start a printout from a specific page in the file.

Several pages of handy hints for users of third party spreadsheets are included in the manual and it's pointed out that sometimes a spreadsheet can be wider than your program's maximum print width. This is true of *Multiplan*, which has a maximum of 512, and *Practicals* with its maximum of 255 characters. What happens is that these programs automatically break very wide spreadsheets into sections as they print in order to limit the width of each page to the printer. This defeats the whole object of *Sideways* and the manual offers a number of workable suggestions to overcome those programs with inbuilt print width limits. There are specific references to the compatible spreadsheet programs listed above.

Sideways is a very simple, but effective idea which I found to work very well. It certainly makes a better looking job of your spreadsheet printouts.

BEST POINT

- On-Line Help

WORST POINT

- Old fashioned look and feel

Word Writer 4

● This is the word processing component of the suite and is like the others in that it works either as a "stand alone" program to write letters and documents or will interface with *Data Manager 2* or *Swiftcalc* to print reports of your data. As I said at the start of the article, it wasn't available for review, but we're assured by Dataflow that we'll be seeing it soon. I hope we do, as I'd like to check out the Thesaurus and Speller as well as the other features it's reputed to have.

As I'm a committed C-128 user I was naturally interested to compare the differences in the 128 versions of these programs, all of which I've read about in the US magazines over recent months. With the larger memory capacity of the C-128, plus its 80 column screen display, the Timeworks suite would then become really feasible for business users.

I read somewhere that *Swiftcalc 128* allows up to 62,500 cells in up to 250 rows and 250 columns, compared with the 25,000 cells in 250 rows and 104 columns in the C-64 version, whilst *Data Manager 128* reportedly allows each stored record to have up to 4096 characters using multiple screens and up to 100 fields of no more than 255 characters each. Unfortunately, Dataflow told me that they're not importing the C-128 versions at present and indeed have no plans to do so in the foreseeable future. What a pity.

Review copies from by Dataflow (02) 331-6153.

RRP *Data Manager* \$39.95

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Speed Reading

by Ken Longshaw

- Average speaking speed 200 w.p.m?
- Average writing speed 30 w.p.m?
- Average reading speed 180 w.p.m?

THERE IS NO known correlation between these figures.

Some exaggerated claims are made over the radio that you can double your reading speed at one free Speed Reading Course. And if you want to go faster then hand over dollars.

Unfortunately the free course always lands up on the same night as my macrame classes - I still read at the same speed.

So *Speed Reading* by Digital is for me. Twenty lessons over 20 days which will attempt to double your reading speed.

I set out by reading the four page manual which tells you that "All instruction will be given en-route, on-screen" and "DO NOT USE THE MOUSE".

True to its word, after making a back-up and doing a screen test to deduce the refresh speed of the screen, I was given instructions for my personal course.

The instructions were concise and clear: first do number remembering exercises. Then word recall exercises, memory exercises and only then try a comprehension test ie: read a passage of 300 to 1500 words then answer a series of questions.

Depending on the number of questions answered correctly, your adjusted reading speed is calculated. I had a speed of 180 w.p.m. on day 1.

Progress is then charted and lesson one is over. About 1/2 an hour had elapsed.

As the booklet strongly recommended that you do only one lesson a day to gain maximum benefit from the course, I did. As the number course got higher the instructions began to get more and more pointed. Specific items or areas of downfall were highlighted. A suggestion is given usually in the form of DO more number recognition or try the memory

exercise again.

The result? Yes, my speed is now over 420 w.p.m.

The Road Test

- The first two exercises of each lesson speed up the time it takes your brain to recognize a word or group of characters. The faster you are at that the easier it is to speed read.

In practice a series of numbers and

assessment. You are asked to read a passage and answer the test questions at the end of each lesson. Your comprehension is gauged by the time it takes to read the passage and the number of correct answers the first time round. Passages from Greek mythology, narratives, fables and pieces from classical literature make the whole exercise most interesting.

The results are posted to a bar chart graphically illustrating the progress to date. It is tempting to cheat and do the test twice. Getting all the answers right after "reading" the 1500 word passage in 2.8 seconds gives you an adjusted reading speed of 32,143 words per minute. Impressive!

By lesson 20 the aim is to have doubled your reading speed. This is not a bad

“By lesson 20 the aim is to have doubled your reading speed.”

then words is flashed at 1/100th of a second duration. You then type in the number. A score of 11 out of 20 is necessary to progress from 1-2 and then 3. Each segment can be exited once eleven correct answers are registered. Of course, to gain more benefit all 20 should be completed.

After the numbers come words and, in the higher lessons, phrases, at a duration of 1/20th of a second. Your retentive powers grow with the succeeding lessons. By the 12th lesson whole phrases, seen only for a fraction of a second, are recalled readily.

The idea is that your brain works itself up to the ability to not only recognize, but remember, what you see, at a high speed.

The proof comes with continual as-

feat for a fairly simple program. At a fraction of the cost of the "real thing" this is a realistic claim that is delivered.

The publishers aimed for an efficient and fast teaching aid. Cymbals and flutes merely distract so an aesthetic look is used to optimize the learning environment. Concentration is the vital ingredient.

As with all skills regular brush-ups do a world of good. A regular return session with the memory training exercises will keep you up to scratch. "And," says the manual, "your memory can always be pushed that little bit further."

If you want to push your brain that little bit further *Speed Reading* will deliver.

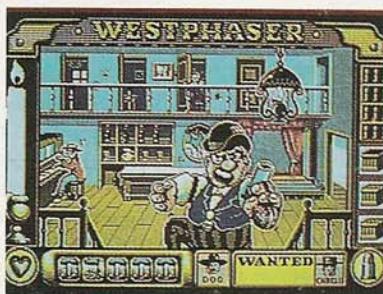
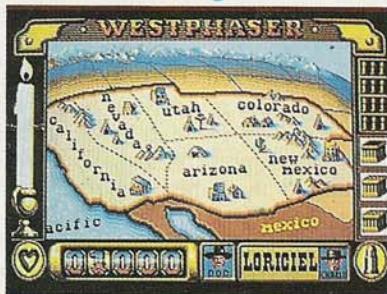
Review copy from Pactronics.

RRP Amiga and IBM \$99.95. □

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 **Pactronics**

Alternative Mice

The M4 Mouse

by Peter Deane

I'VE BEEN AN Amiga user for just over a year now, and finally made the best upgrade to my A500 yet - the replacement of the standard Commodore mouse.

For expansion I have previously looked to original Commodore equipment: the A501 1 meg expansion, and the 1010 external disk drive, merely because they were available locally, and without fuss. (I was lucky to get the 1010 drive second-hand. Given its price there is no real way you could consider it over a third party drive that's cheaper and doesn't click when there's no disk in the drive).

After about six months of use, however, it was obvious my mouse was starting to give up the ghost. Frequent cleaning of the rollers meant that it still tracked onscreen fairly well, but the buttons were infuriating. Worst was my menu button, which seemed to have a mind of its own. Selecting a menu often meant a random selection. Sort of "Oh, no! What have I done now?" when the button would drop on a selection you obviously didn't want. Sometimes it was merely waiting for a save that was unnecessary, or a wait for an unneeded file requestor, but at other times it was a downright menace.

When I started using the Font Editor, I cursed the programmers for not including an "Are you sure?", after italicising an entire font instead of merely copying a character from one box to another (the two selections are adjacent). The FEd's documentation says hollowly that operations like italicising or un-

derlining "affect the whole font and are very hard to undo"! Great when you lose ten characters that just took you an hour to create.

I recently visited the local computer store ostensibly for blank disks, but couldn't help noticing a package that merely stated "Winner M4 - Mouse for Amiga 500/1000/2000". The documentation accompanying the mouse was even more terse - there wasn't any! Then again, I don't really need someone to tell me to plug it into the mouse port and proceed in the usual way. Mouse use is intuitive enough anyway, even for an Amiga user of only a few months.

We fired up a word-processor, and I must have spent about half an hour ensuring the menu button was definite. In short, the mouse performance was pure excellence (also the word-processor in question). Next I looked to a paint program to check the tracking. Again a deluxe effort from the mouse (and software).

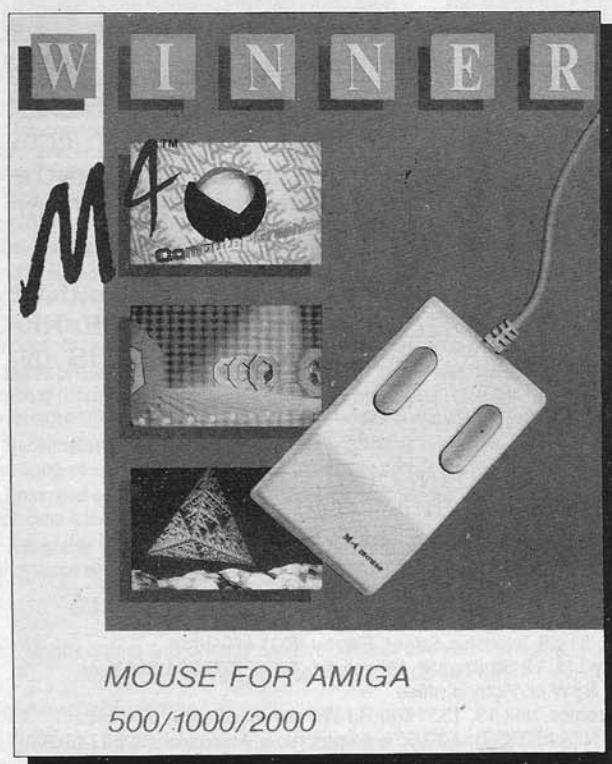
After an hour (and a trip back to the Autobank - I was really here only for disks) I finally forked out the cash and departed. Naturally the first thing I did on arriving home, was get out the small phillips-head screwdriver and have a look inside. I found a small, neatly constructed PCB, and three brass rollers, much thicker than those in the standard mouse. Access for cleaning was much better than in the previous effort. The buttons in the old mouse were cheap membrane switches similar to those in \$13.99 joysticks, this being the root of the menu selection problem. My new M4 had, much to my delight, real micro-switches! The lead of the new mouse was also a full 2 centimetres longer than the old (wow!).

The M4 also had longer actuating buttons that were concave, allowing better grip. You can, after getting used to the new feel, actually move the mouse with the buttons, meaning faster operation, and less hand movement. No longer do you have to move the mouse around from the rear and move your hand forward to the buttons to do something. With the M4 you can both move the mouse and select the buttons with your hand in the one position, which must cut down on the risk of RSI.

Being a slightly different shape to the old mouse, it does take a week or so to get used to, but for more positive tracking (crucial if using a paint program), and for definitive menu selections (a must), that change is more than worth the effort. I've been using the M4 for over a month now, and to its credit, I still haven't had to clean the rollers, almost a weekly job before.

The random menu selection is also a thing of the past.

In all, if you are sick of the old mouse, I would thoroughly recommend the Winner M4 mouse. It is a superior model to the old one and is less than half the cost of a replacement original (which will only end up performing just as badly six months later, anyway). Mine came from the Computer Spot store at Charlestown, and it is distributed by Pactronics (RRP \$79.95, 02 748 4700), so you won't have any trouble hunting one down, particularly if you take your cat with you. □



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Did we miss out on the 1581 drive?

by Phil Arntzen

THERE HAS BEEN considerable discussion regarding the Commodore 1581 (3.5") disk drive that never made our shores, both in this magazine, and in user groups throughout the country. The specifications sound very impressive, and the newest programs, particularly *GEOS* and *BASIC 8*, from Free Spirit Software, are quick to mention that their programs support the drive. Having been hounded by members of my local user group (Commodore Computer Club WA Inc.), for the last six months about the drive, I felt there would also be many readers of A.C.R. that would like to know about it.

What is it?

For those who do not know, the 1581 is a 3.5 inch disk drive, as opposed to the 5.25 inch 1541/1570/1571 compatible disk drives. It is physically smaller, being 140mm wide, 63mm high, and 230mm deep. It also has a separate power supply, like the 1541-II model. It also has about 5 (YES FIVE) times the storage of a single sided 5.25 inch disk. It also has a much faster transfer rate than the 5.25 drives. The 1581 is by far the fastest of any STANDARD COMMODORE serial

Interfaced drive. Part of this is because it has a Full Track buffer.

In 64 mode the main difference is write speed, although reading is also speeded up. A comparison chart appears later in this write-up. All operations are faster in 128 mode, showing significant savings over the already brisk 1571 drive. The capacity also takes some getting used to:- 3160 Blocks free when empty.

The drive has several unique features.

On power-up, and initialization, the drive will look for a file named "COPYRIGHT CBM 86" that is a User type file. If it is there, it is loaded into drive memory and executed. This enables custom DOS routines to be loaded automatically.

There is also an Autoloader flag in the B.A.M. that will decide if the file will also be executed with an Initialize, Burst, Inquire, and Burst Query commands. I use this feature to alter it to device 8 on power up with some of my disks, without having to alter the switches on it, which I leave as device 9. This then lets the C-128 Autoboot on the 1581, then switch to 64 mode and display my custom menu of games. I can then select the game. See the accompanying program listing.

The best thing that I have done with my 1581 is installed the Jiffy-Dos 128 sys-

tem from H.P.D. While this produces a 50%+ improvement in speed in 128 mode, the difference in 64 mode is staggering. If ANYONE has a 1581 and has not done this then they are not seeing the speed that it is capable of. Imagine loading your favourite game, a 202 block program in EIGHT seconds. Even the trusty 1541 can only manage 12 seconds with Jiffy-Dos installed. A far cry from the 124 seconds that it used to take. I have tried a multitude of cartridges and the like, and nothing comes near this.

An interesting thing was that my 1541 and 1571 were faster than the 1581 when they were converted, and I was waiting for the 1581 drive chip to arrive.

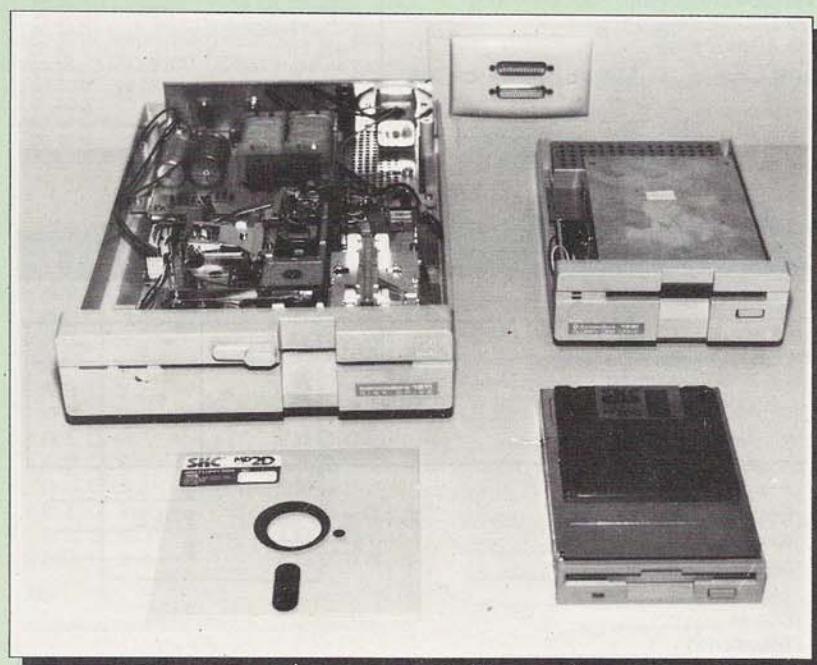
The main drawback with the 1581 in Australia is that there are not many other users. You can buy them overseas, BUT... not locally. Commodore Australia will not bring them in because they do not think they will sell well enough. Maybe we should all write to them asking them to bring in this great drive. Mine came from the U.K., so only needed the plug changed. The U.S. model is 110 volt, so needs a step-down transformer. It is interesting to note that the 1541-II drive transformer has 1541-II/1571-II/1581 marked on the case, and does fit the drive. As the power supply is external, this is easily changed. A friend of mine already has done this at a reasonable price.

My thanks go to H.P.D., for bringing out the full potential of this drive via Jiffy-Dos. For any readers that are interested, H.P.D. have advised me that they will import these drives for those who want to buy one without the risk of mail-ordering from the U.S. They can be contacted on (08) 252 3300.

For any other 1581 users out there, please write to me, C/o Commodore Computer Club W.A., P.O. Box 146, Willetton, 6155. and I will be only too pleased to share with you the programs that I have written for this drive together with any other information.

For the technically minded

The drive is a Chinon unit, and is actually an IBM 3.5inch drive that records in the industry standard MFM



Left: 1571

Right: 1581

(Modified Frequency Modulation) format, rather than the usual Commodore GCR (Group Code Recording) format. It is interesting to note that this unit is the "IBM 720K" unit, not the higher density "IBM 1.44Mb" drive. This raises the possibility that a drive could have been released that had twice the already generous capacity of the 1581.

For the serious database user, there is really no contest between the 1581 and any of the other Commodore floppies. While there are several speed-ups available in both hardware and software for Program and Sequential files, there are few indeed that will speed up direct access programs, or Relative files. Any *Superbase* user will tell you that most "speed ups" will only work on games, and the initial loading of the program. There are also horror stories out there of disks with so little space that the file had to be exported out in small amounts, and transferred to another disk.

I personally have one database that has only 60 blocks free on the 1571, and that is out of 1328 blocks from a double sided disk, and not the usual 664 blocks of the 1541. A lesser known fact is that the 1571 cannot use all of its capacity for ONE relative file. If you use large relative files, the maximum relative file size is 167,132 bytes (652 blocks), the same as the 1541. You would have to use TWO files to utilise the capacity. This is because of the limitations of the side-sector blocks.

The 1581 uses Super side-sector blocks, that point to 126 groups of side-sectors. This gives a theoretical capacity of 23 Megabytes that can be handled by the system, well in excess of the 790K disk space. The 1581 can store any FILE COPYABLE program, sequential, relative, Deleted or User file. This eliminates programs such as *Lode Runner* from being easily transferred to it, as it uses direct track and sector access for its data, and there is no copier that does a direct track and sector copy, because of the wastage that it would cause. The 1581 has 40 sectors per track, compared with 17-21 for the 1541/71. Any program that does not have protection, such as an ISEPIC file can be readily copied to it.

The 1581 also supports Partitions, or Sub-Directories, that behave like smaller disks. You can Format them, and treat them just like a normal disk. All disk commands will only affect that part, and not the entire disk. Each partition can have 296 directory entries. These are selected by the Command "/0:partition name", and the main (or root) directory is returned to by the Command "/". Partitions appear in the directory with a file type of CBM. The Validate (or collect) command does not update the BAM (Block Availability Map) for the area set aside for a partition. Also, a validate, scratch etc., will only affect the partition that is selected. Partitions can be Scratched, Renamed & Locked like any other filetype.

Once you have used partitions, you would sorely miss them on the old drives. Instead of a hundred filenames bunched into groups, your favourite utility disk can have them filed under partitions, for example, Proofreaders, Disk Utilities, printer aids, etc.

I have both the Super 81 Utilities & 1581 Toolkit which replace all the usual utilities, such as Directory Sort (Mandatory with 296 Entries), and other housekeeping chores. Thankfully, the 1581 Toolkit is an absolute joy to use, and provides an effortless way of making partitions, and seeing the B.A.M. etc.

The dual drive copier redefines the word FAST by copying an entire disk (790K) in 100 seconds. This rate would transfer an entire 1541 disk in just 21.5 seconds! And that is with a serial interface! The old Public Domain directory aids do not work,

because of different track and sector locations. This means that I have to write or buy what I want, or try to find other users with whom I can swap P.D. programs that do disk file management. This problem would no doubt disappear if they became more readily available. About one third of our user group has expressed a desire to own one, so I am sure that should Commodore decide to sell them here, that problem would disappear. □

Specifications (1571/1541 in brackets).

BLOCKS FREE 3160 (1328/664)

MAX FILE SIZES

Sequential 783K (329K/164K)

Relative 800K (163K/163K)

MAX DIRECTORY ENTRIES

296 {per directory} (144/144)

The 1581 has partitions and Sub-Directories. These Sub-Directories can EACH have 296 file names. (max 26 sub-Directories). On-board RAM 8K (2K/2K). Power used 10watts (25watts/25watts).

Speed Comparisons

All speeds in Seconds. The following is 128 mode first, 64 mode are fast. Figures in brackets are 1571 (128/64). 1541 speeds are the same as 1571 (64 mode). The figure between the asterisks is the Jiffy-Dos speed in both 128 & 64 modes.

Load 202 block Prg. 12/102	(14/124)	** 8 **
Save 100 block Prg. 26/40	(48/75)	** 14 **
Read 125 block Seq. 20/63	(31/84)	** 10 **
Write 100 block Seq. 20/44	(48/81)	** 11 **
Read 64 154-byte Rel records	17/37 (21/40)	** 10 **
Autoboot 202 block program (128 mode)	13/n.a.	(54/n.a.)** 9 **

SUPERBASE SEARCH TIMES

(400 record file used for all tests)

I have included times on superbase searches both stock & Jiffy-Dos, for those who share my interest in the program. A quirk is that Superbase 128 does not handle the 1581 until Version Three, although the 64 Version Two does.

128 mode (Superbase Version 3.01)

1581 drive	86 seconds	** 66 **
1571 drive	166 seconds	** 89 **
64 Mode (Superbase 2.02)		
1581 drive	271 seconds	** 70 **
1541 drive	336 seconds	** 169 **

Times obtained by searching for non-existent record in a non Key field. Record size approx 1 block per record.

Device 8 Autoloader Program Listing

```

10 rem device 8 autoloader routine for 1581 drives
20 rem copyright leo den-hollander & phil arntzen
30 open 2,8,2,"0:copyright cbm 86,u,w"
40 do until x=184:read x:print#2,chr$(x);:loop
50 close2:end
60 data 0,5,20,174,119,0,224,40
70 data 240,10,169,40,141,119,0,169
80 data 72,141,120,0,76,90,255,184

```

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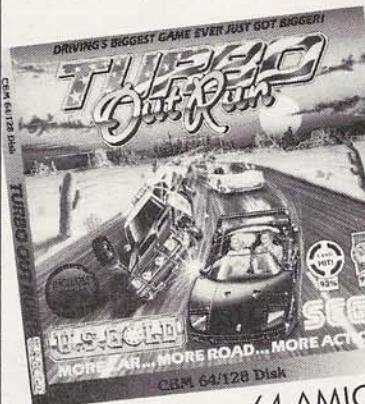
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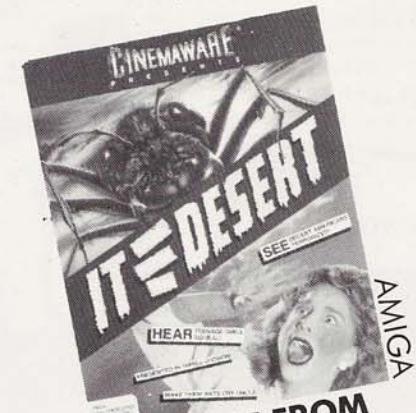
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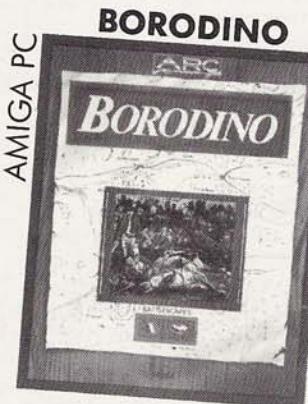
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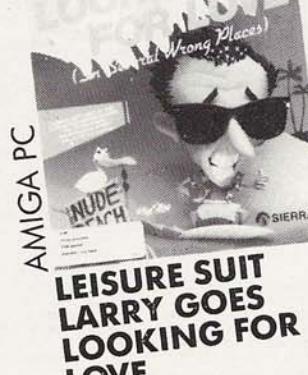
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Devpac II Assembler

by Oben Candemir

IVE USED QUITE a number of assemblers in my time and I've often changed my mind on what is and what isn't important in a good assembler. The product in question replaced *Devpac 1.0*, its predecessor by the same company HiSoft, which also publishes a fast BASIC compiler for the Amiga. The original assembler had a built in text editor which although it wasn't too crash hot did its job well enough. However its features were by no means complete or the best of its kind. *Macro Assembler* by Metacomco was a far better assembler and still in version 11.00 contests the new version of *Devpac* pretty well.

I will stick my neck out however and claim that *Devpac 2* is probably the fastest and best featured assembler on the market at the moment and will recommend it without hesitation to anyone before I even list its many features.

Complete development system

- Firstly, the whole package is a complete development system. It has a text editor, debugger, stand-alone CLI driven assembler, and ability to assemble programs to memory and give them an immediate test run. It has full compatibility with other development systems, and object modules created with *Devpac* seamlessly link with other object modules generated by *Lattice C Compiler 5.0*, *Benchmark Modula II* for example.

The XREF, XDEF facilities are faultless and worked on all my test runs. But perhaps the best feature of all is *Devpac's* ability to generate code for the other members of the MC68000 family such as the 68020 and 68030. Some people may not think this relevant, but the current trend towards 32 bit processor cards, and ideas by Commodore of upgrading to true 32 bit power in the rumoured Amiga 3000, means this is a very useful feature and unmatched by any other assembler

apart from Lattice's *ASM Assembler* which also has this implemented.

On my instruction tests for the assembler, *Devpac* was not squeamish over technical details such as quirks of expression. For example it automatically translated MOVE.L D6,A3 as the more correct MOVEA.L D6,A3 in its assembly of the test code. This feature is not unique as all assemblers which claim to be serious should have the capacity of tolerating some ambiguity, however Lattice's Assembler is very sensitive to such things and it makes it a pain to use such a compulsive complainer! *Devpac* didn't suffer from this and most of the industry standard pseudo-ops were available.

INCBIN feature

- While on the subject of pseudo-ops (which are instructions to the assembler rather than the processor) *Devpac* has an 'INCBIN' feature which allows a programmer to include binary source as if they were 'DC' ed in the source code. This feature above all made me an instant convert to *Devpac*. What programmers previously did was something like: Leave space in the object module by a 'DS.B or DCB.B or BLK.B' and then load the binary into the space through some other program or even a text editor! Needless to say that was a pain in the you know where! *Devpac* has made inclusion of binary files, which are literally the most important part of a game or demo programmer's needs, a simple INCBIN away. HiSoft deserves great praise for being so innovative in this respect.

Devpac 2 also uses all the other standard pseudo-ops such as SECTION, EVEN, LIST, NOLIST, etc. It also offers the ability to tolerate case-sensitivity in labels. For example, with the command OPT C- (which means minus the Case sensitivity) the labels STart, StarT, STAriT, and starT would all be one and the same thing. It defaults however to case sensitivity.

Other switches or OPT's as one may say are OPT D+ which includes debug

data in the object; OPT L+ which produces linkable code.

Assembling your code is also easy, you have the choice of using *Devpac's* own text editor but you may equally use any other editor or word-processor with straight text-saving ability to write your code. Once you have your source file you enter the *Devpac* editor and load your source. Then choosing ASSEMBLE from the menu brings up a window of options etc. for the assembly process. After entering the proper values the assembly is blindingly fast and painless. You tap a key to continue and the work is done.

As if that wasn't enough there is a CLI driven assembler also. This allows you to assemble your code the same way as you would with Metacomco's *Macro Assembler*. Actually the two assemblers are the same; it's only that the Editor provides a nice driver for it. Suffice to say that HiSoft have covered both angles for the tastes of any programmer. The editor also allows entry into the debugger MONAM from a simple menu selection.

Once your code is assembled, and provided it doesn't need anything else, it may be given a straight run by choosing RUN from the menu (the source must be previously assembled into memory with the appropriate selection of this feature from the Assemble window). This feature is only available in the Editor screen and is very useful for beginner programmers to try out their code without creating a file on their disks.

Using arp

- One surprise which I was struck with was the usage of the 'arp.library' in your libs directory if it was available. Without the arp.library there is a crude file requester which does not list the files on your disk and simply asks you to type a file name. The arp.library's presence soon changes that; you get the standard 'arp' file requester which is a boon to any serious programmer who forgets what he called that file he worked on 'the other day'. Well done to HiSoft once again for

(Continued on page 30)

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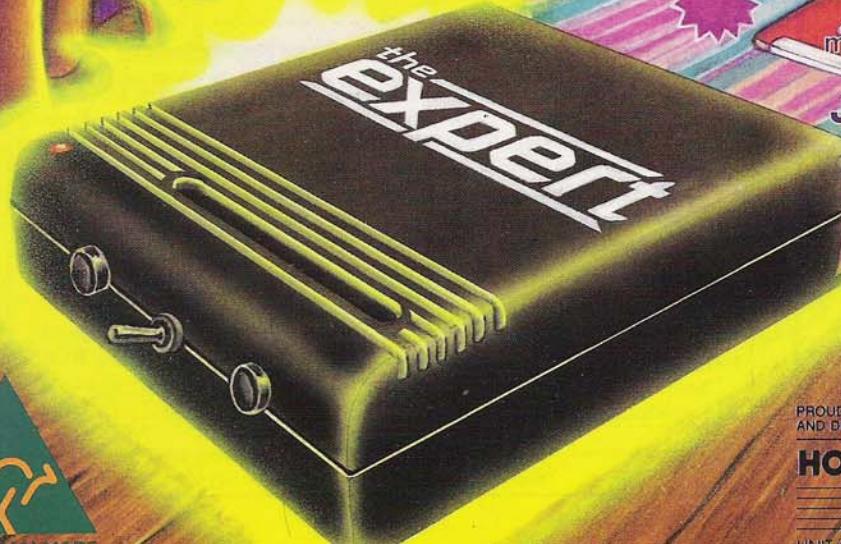
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using ARP, as it means that the assembler is much shorter than it would be had *Devpac 2* included the File requester in its code.

To finish off I did a test with a collection of assemblers which I have bought or borrowed and not used in the past. The test was composed of the assembly of assembling a source file with 10K of NOP's (ie 10240). This meant that the speed of file inclusion etc. was ignored, but the test is surprising, to say the least. The test was run on a standard Amiga 2000 with no expansion cards or processors.

Assembler	Time (seconds)
Devpac 2.0	9.2
Devpac 1.0	26.7
K-Seka 1.5	7.9
Assempro	20.1
Macro Assembler	46.3
Aztec 3.6a Assembler	36.4

The table may give potential buyers a guide to the speeds involved in the current range of assemblers on the market. It is easily seen the remarkable improvement *Devpac 2* is on the first version! *K-Seka* is also a very fast assembler, which may be difficult for the new beginner to use. Its features are not as good as *Devpac's* either. And the two second difference in assembly time is more academic than anything else.

And on that note I hastily recommend *Devpac 2* to anyone who is at all serious about their assembly language programming.

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Amiga Hints and Tips

Shared Secrets

by Peter Deane



NY SERIOUS AMIGA user who has had their machine for over a year will be able to give you a few tips learnt under duress, or just through curiosity. Here's a hodge-podge of a few of mine.

Firstly I will assume you have some knowledge of the CLI, how to use "Ed" on batch files, and familiarity with a disk utility program. This knowledge is essential to any serious user, and when you get sick of the games all Amiga users toy with in the first few weeks, new users should start learning how to do these things. The tips here also apply to the 1.3 DOS ONLY! I hardly need to dwell on the handicap you are imposing on yourself without the new operating system. 1.4 is at least six months away, and the \$30 for 1.3 will be well spent.

Disk utilities program

- The first advice I can give you is to get hold of a public domain disk utilities program, examples being *Dux5*, *DiskMan(ager)*, *DU.3* or Mike Hansell's *DirUtils* (an Australian program). I got *DU.3 plus* very early on, and despite seeing many other versions, I've stuck with it. I used to load it into RAM on booting - it now goes into RAD - it's so useful that hardly a session goes by without its invocation. A new user can perform most CLI functions through a program like this, and coupled with the workbench, you can explore and arrange your disks with the mouse and a minimum of typing.

The first problem I noticed using *DU.3* is that each time you look at a disk, the disk icon hangs around long after you have taken the disk out of a drive, in fact, until you reboot. This used to result (after an extensive session) in up to 20 disk icons living on the workbench screen, with resultant confusion. I'd often reboot just to clean up the screen.

It is possible to get rid of them by using a CLI command, however. Enter the CLI and type:

ASSIGN diskname: REMOVE

close the CLI and your icon will magically disappear, provided nothing else on that disk is in use. If you wish to leave the CLI window around, then simply attempt to open the unused disk icon. It will disappear, with an error "this directory cannot be opened." This will save you a bit of memory, too, equivalent to the length of the Disk.info file of the disk (typically 1/2 k).

ICONX

- Another tip I strongly recommend is the use of ICONX. See the 1.3 manual for its specifications. With ICONX, it is possible to get out of using the CLI for many operations. For instance, I like to have a lot of fonts on hand when using my word-processor, so much so that I have a disk with nothing else but fonts, which I have collected from many sources, and continually upgrade.

Because I always boot from my souped-up workbench disk, no matter which application I run, it is necessary to ASSIGN the FONTS: to this disk each time I use the wordprocessor. One could do this from the CLI each time, but that's just too boring. I want to type a document, not CLI instructions. To get around this, I created a batch file something like this:

```
ECHO "Assigning fonts to fonts disk."
ASSIGN FONTS: F:fonts
ECHO "Have a nice day, and all that -
bye, bye!"
ENDCLI
```

The batch file is called "FontSet", and it has a PROJECT icon attached to it which defaults to the C: command ICONX. To do this you should pinch a project icon from somewhere (or make one yourself using IconEd), and rename it (in this case) "FontSet.info". Get INFO on it from the Workbench menu. In this box, under DEFAULT TOOL, scrub out

its old contents and replace them with C:ICONX. You can further customise it by entering window co-ordinates and a title in the TOOL TYPES box.

The result of all this is, to assign the fonts correctly, all I have to do is double-click the FontSet icon, and then open up the wordprocessor. The fonts on my fonts disk are then on tap. I have another batch file called "FontRevert" which simply assigns the fonts to SYS:Fonts, which I use after closing the wordprocessor.

LOADWB options

- Another memory management tip is to make use of the options for LOADWB in your startup-sequence. Standard 1.3 disks use the LOADWB -delay option, which is fairly useless. Perhaps someone can enlighten me on the reason why this is done. The "-DEBUG" option is far more useful. If you replace the startup-sequence's "LOADWB -delay"

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with "LOADWB -debug" (remembering the space before the minus sign) two hidden workbench menus will come up to the right of "Special".

The first option, "Debug" is of no use to you. You must have a 9600 baud serial terminal hooked up to the computer to use this, but it does enable you to poke around in the ROM. DO NOT SELECT THIS FUNCTION OR ELSE YOU WILL HAVE TO REBOOT TO REGAIN CONTROL. Believe me!

The other option, "flushlibs", is very useful for getting back lost memory. Each and every program that calls on a library will cause that library to remain in RAM. For instance, my wordprocessor will hang on to the printer.device library, and any fonts I have used. Consequently, when I close it down, I could be short over 100k, because these libraries are still living in RAM. Short of a reboot, I now have to work with only 600 k rather than my normal 730k. (I set up RAD, and run a few programs at boot time, consuming this memory).

Selecting "flushlibs" causes these unused libraries to be "expunged" (according to the manual). In my case, it means I get back the 100k or so, and I can now proceed to other applications with a little bit more memory free, often a lifesaver when performing brush operations from DPaint, which are usually very memory-hungry.

Let's hope this information is of some use to you, if you are looking for ways of streamlining your workbench operations. These techniques save time, not least because they can save you a reboot, or save CLI use for customising the system.

Programs mentioned:

- 1.3 Enhancer Software - from Commodore. Available at any Amiga shop at around \$30.
- Mike Hansell's DirUtils - Send Mike \$10, a disk, an A4 SAE and an ordinary SAE to PO Box 560, Epping NSW, 2121. In return he will send you the program and a manual. DirUtils is shareware.
- DU3+, Dux5, DiskMan, etc. - Public Domain. Available from most user groups and PD suppliers. If desperate, send me \$6 to 35 Tighe Street, Waratah NSW, 2298 and I will send you a disk with these programs, and on-disk documentation, plus bonus PD games to fill the disk.

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Amiga hints and tips

by Tim Strachan

Using "DEFSYSDISK"

● Whether you want a faster startup-sequence, or like to check out a bootable disk without actually booting up with it, DEFSYSDISK is the (public domain) program to use. With one command in the CLI, it allows you to make all the necessary ASSIGNments of system directories to another disk, hard or floppy. For those who aren't sure what this means, when you boot with your Workbench disk (or any "bootable" disk) the Amiga assumes it is your SYSTEM disk, and automatically ASSIGNS a bunch of "logical devices", such as C:, DEVS:, LIBS: and so on to the corresponding directories on your boot disk.

So, for example, when you later type DIR into a CLI to get a directory listing, the system will look for the DIR command in the directory you're currently in, and if it's not there, will look in the place that the logical device C: is assigned to - normally the C directory of your boot disk. The same goes for anything else it looks for during the course of a session of computing.

As a result, you can ASSIGN these logical devices elsewhere if you like, either during the startup-sequence (by editing it), or through the CLI later on. So you might, for example, make a C directory in the Ram Disk, copy a bunch of CLI commands to it, and then ASSIGN C: to RAM:C.

Anyone using a Hard Disk, or who copies all the necessary system directories and information to RAD: (the recoverable ram disk) or just to RAM:, will find DEFSYSDISK very useful, as instead of a number of lines in the startup-sequence along the lines of: ASSIGN DEVS: DH0:DEVS ASSIGN C: DHO:C etc., you'd simply enter DEFSYSDISK DH0: (or RAD: or whatever).

Another good use for this program is to check out a bootable disk which may be suspect (ie, have a virus in the boot-block), or because you don't want to reboot your system for some reason. Simply enter DEFSYSDISK DF1: (if the disk

is in the external drive) and then EXECUTE S:STARTUP-SEQUENCE and you'll be emulating a boot-up on that disk. When you've finished just use the program again to re-assign everything to your own system.

Find DEFSYSDISK on TBAG #25 in any good Public Domain collection.

Parallel and serial devices quirks

● There is an odd quirk in AmigaDOS - it seems that if you're using either a serial or parallel printer, you need both the PARALLEL.DEVICE and the SERIAL.DEVICE in their normal place in the DEVS directory, for some odd reason.

Faster copying to RAM: disks

● When setting up a RAD: disk or RAM: disk, you can go three ways (at least). You can simply COPY every file one by one, by the normal COPY command, as in: CD C: COPY TO RAD:C ALL and wait patiently as the files are transferred.

Or you can use the compressors/crunchers ARC or ZOO or PAK to first compress all the files you need, and then de-crunch them once at their destination.

Or you can use the Shareware program DOSKWIK by Gary Klemper (on Megadisc's Best Of Fish #27) which looks like the best option. DOSKWIK is made up of two programs, READKWIK and RITEKWIK, one of which will very rapidly copy an entire device (ie directory or disk) to another place in its own non-DOS format, and the other will turn it back into normal DOS readable form again. This is a particularly useful program for anyone setting up Ram disks.

Naming names

● Someone sent us a disk full of useful public domain stuff from the US, and happened to call his letter something like ">>Read This<<" which created prob-

lems when trying to read it, the reason being that if you try to use any reading command, such as TYPE or MOST or MORE, as in: MOST >>Read This<< then AmigaDos sees the ">" as the REDIRECTION symbol and comes back with an error. So when naming a file, avoid such characters (as well as "<", "?" and perhaps others?). The way around the problem is to use quotes around the filename: MOST ">>Read This<<" and Dos will be happy.

It's a good habit to get into to avoid spaces in file names where possible, because otherwise when working from the CLI (and some directory utilities) you'll have problems, and have to use quotes, something of a pain. The "underscore" character is a good separator of words (as we use in Megadisc a lot) - instead of calling your file MY FILE rather call it MY_FILE, and you'll avoid the hassles of quotes.

And just for the sake of later recognition of a file, describe it more fully with suffixes, as in:

Bank Manager.ltr

Invoice.pp (for a Professional Page file)

Brochure.ps (for a Postscript file)

My letter.2Sept89 and so on.

Other operating systems such as MS-DOS are limited to eight characters in file names, whereas AmigaDos allows very long ones, so use the facilities!

The ins and outs of SETPATCH

● From what can be gathered so far: some A500/2000 models have a problem with RAD: the recoverable ram disk, when an Obese Agnes is fitted (see MD12 for details of Obese Agnes, and other bits and pieces on this disk). The fix is to put in your startup-sequence SETPATCH >NIL: r Note that it must be lower-case "r".

For anyone who has ever wondered what that ">NIL:" argument means: it tells the system to forget about any output to the screen that may automatically occur. Some programs will write a couple

(Continued on page 38)

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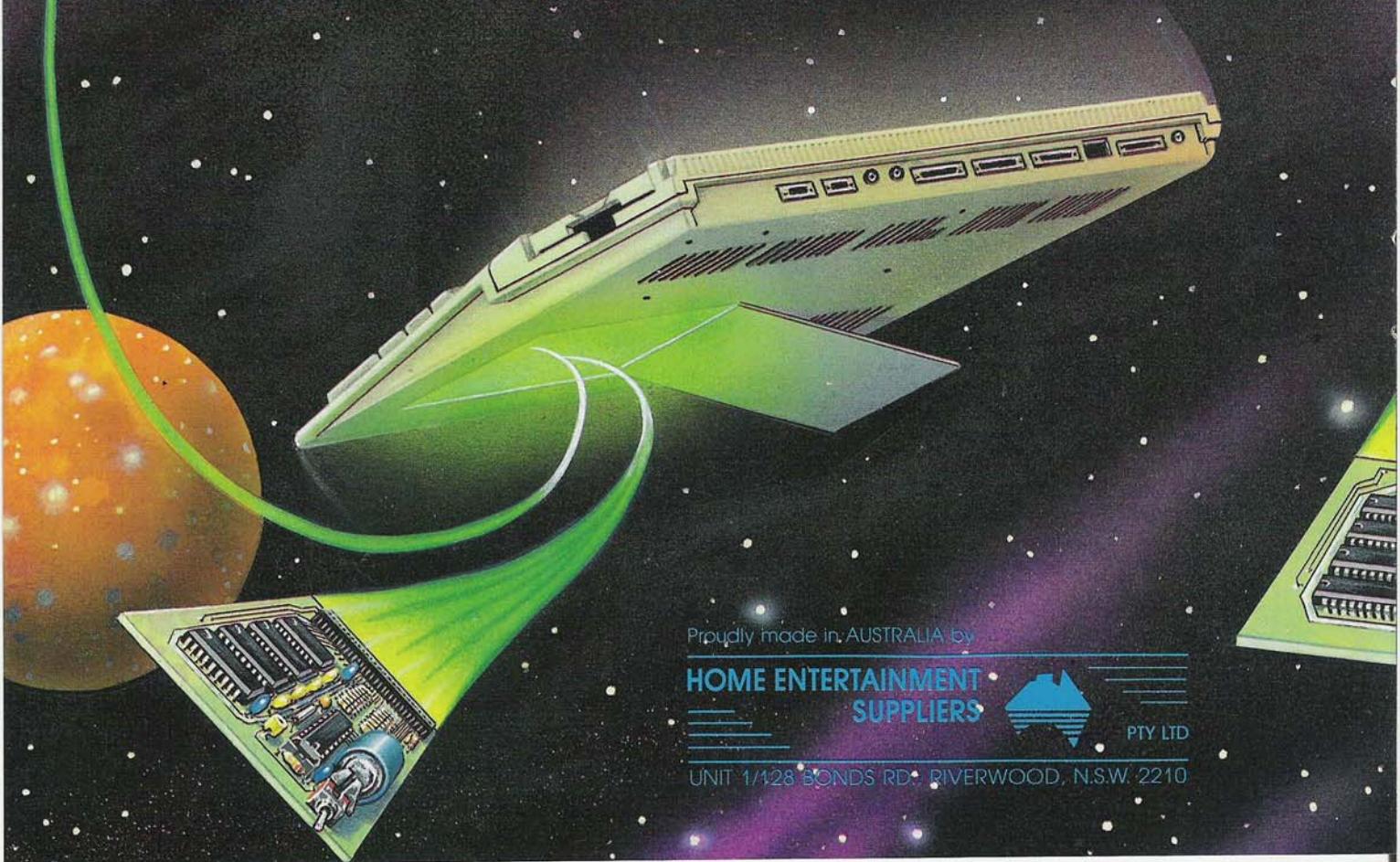
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of lines to the screen telling you about the program, the author, etc. This argument will suppress such info.

Getting around the fonts problem

• The trouble with using other, non-Workbench fonts is setting them up in the Fonts directory of your disk, and the fact that some programs will show only a limited number of fonts from the menus, and also a problem of fitting a bunch of fonts on an already full disk.

One way around these problems is to simply set up a disk full of the fonts you want, and call the disk FONTS. If the disk is in a disk drive at the time your program is asked to look for fonts, it will recognise the "physical device" Fonts: (ie, the disk drive) before the "logical device" Fonts: (ie, the directory called Fonts on your system disk). This will allow you to have as many fonts as you like on your Fonts disk, and also to have a bunch of different Fonts disks ready for different purposes.

Another way to access different fonts is to use the ASSIGN command. Say you've got a directory full of fonts somewhere (on your hard disk, or another PD fonts collection) called "Large Fonts".

Before accessing them from a program (such as *Pagesetter*, *Deluxe Paint*, *Notepad*, etc.), enter in a CLI ASSIGN FONTS: DF1:LARGE FONTS (assuming the directory is on a disk in your external drive), and then you'll get them automatically from then on.

If you can't afford an RGB monitor

• The Amiga is quite capable of being hooked up to a "composite" monitor, ie, one on those monochrome monitors used of IBM-type systems. So if you're currently using a TV for activities like word-processing or spreadsheets where you'd like to be able to see the details more clearly, look in the local "Trading Post" or classifieds or IBM dealer ads and see if you can find one - I got one for \$80 and another for \$60, hooked them up to two A1000s with a simple RCA - RCA cable, and with a bit of fiddling around with the Preferences colours, got four distinct shades of green up on screen. As long as you're not running games or graphics it works out fine, and a lot cheaper than TVs or RGB monitors.

Unable to delete a directory or drawer?

• You may be happily deleting away, via Workbench or CLI, and an error pops up telling you you can't delete that drawer/directory because it is in use ... but it doesn't seem to be in use at all. A closer inspection of your startup-sequence or any other batch files you may have run may show that somewhere or other the dir/drawer has been ASSIGNED (see above) - if so you can't delete it.

Watch out for fuzzy SCSI

• Although SCSI (Small Computer Systems Interface) is supposed to be an industry standard, lots of manufacturers, particularly Apple, have been playing fast and loose with the specifications. One problem is that SCSI lines 20, 22, 24, 28, 30 and 34 aren't left unconnected as they should be - some are tied to +5V and some to ground. This can create problems, and the fix is to simply not pass those lines in the SCSI interconnect cable.

Recycling money-saver and those A500 torx screws

• John Boland let us know about these ones - in this era of awareness of resources, John suggests that you can get any quantity of draft computer paper you want from local computer sites: offices, etc.

Use the reverse side of their used paper, and if you get 132-column paper cut it appropriately and use friction feed on your printer. Any professional print firm will have a guillotine to make a clean cut for you. When cutting the paper use the rightmost side, as the back will have almost nothing printed on it and your prints will be more readable. Keep the offcuts as well for scrap paper, notes, etc. John mentions, as an example of saving using current paper costs, that a printout of the Megadisc catalogue will take approximately 300 pages and cost \$8.40 if you were to use bought paper!

Hint 2 is about those "torx" screws used to hold the A500 together - they can be removed with the help of a 2mm Allen Key, obtainable from any hardware store for a few cents. As he says, this will enable any budding hardware hacker to look

inside the machine and void any warranty with ease!

PROMPT playing

• The PROMPT CLI command can do all sorts of interesting things if you mess around with it. It takes all sorts of CONTROL or ESCAPE codes (see the inside of the MEGADISC CARD for a description of all of them). The 1.3 Enhancer manual tells you this much:

PROMPT %N> [displays the CLI number]

PROMPT %N%S> [displays both CLI number and directory]

PROMPT %S%N> [as above, reversed]

But don't stop there. Try, for example:

PROMPT "%N.%S<ESC>D >>" [also gives you a new line and a couple of spaces round the prompt, thus requiring the double quotes].

Note that the <ESC> represents the ESC key at the top left of your keyboard. Keep experimenting and see what you get, and put your final PROMPT command in your startup-sequence.

Just what is M-M-Maxtransfer in your mountlist?

[Paraphrased from a recent *Transactor*]

• What it does is limit the amount of data that can be read or written to the hard disk in a single request to the number of bytes specified (not Blocks specified, by the way, as the 1.3 manual states). If your hard disk controller can't handle the amount stated, it will overflow and possibly corrupt your data. It's possible to do away with the Maxtransfer entry completely, but you'll have to try it by copying a large program file from one place to another and then see if it works ok. If it doesn't work, put in a value of 65536, and try again. If it still doesn't work, try halving it to 32768, and so on. Mine seems to work with no maxtransfer entry at all.

RAD: and FFS

• If you're using these together, and having problems, try adding a MOUNT=1 line in your Mountlist. It should now recover as a recoverable ram disk should. □

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A printer/digitizer Switch for the Amiga

HAVING PURCHASED THE necessary equipment, I commenced this new obsession (digitizing) about six months ago. You know, the 2 Megs of RAM, Digi-View, monochrome TV camera, POP filters etc. I went along happily digitizing everything in sight, plugging the digitizer in, unplugging it, and plugging in the printer cable to print the picture I had just digitized. On and on this tedium progressed until it absolutely drove me stark raving mad! There had to be a better way.

So, I got on the 'phone to all the various dealers around and asked, "Have you a device to connect a digitizer and a printer cable to my Amiga at the same time, so I can switch between the devices at will?" Responses on the whole were non-committal bits of drivel that ranged from: "I don't deal in that sort of equipment" to "It can't be done" to "Try Dick Smith". Undaunted by all this garbage from salesmen who knew not one iota about computers, I pressed on, convinced that somewhere, there was my switch, just waiting to do the job.

BINGO. "Yes", the man said, "we have just the thing to do your task." So I went and bought it. We went home (my new switch and I).

I plugged my new acquisition in, and, yes it did switch the printer, but try to digitize with it. Quickly the screen abounded with noise.

All in all this device did not live up to its expectations. It turned out to be a switch - albeit, a dirty big switch with an abundance of wires hanging off it. At about a hundred bucks, I quickly sent this miserable, piece of useless junk back to the store and got a full refund.

So there I was back in the same position as before. I ask you, dear reader, how does one solve such a dilemma? The answer is, of course, build the thing yourself. I started to build the switch, bit by bit it took shape and lo and behold, IT WORKED!! Not only did it work, but it introduced no perceivable noise to the

system, and cost about 50 percent less than the commercial unit that failed to come up to standard.

The whole thing costs 40 to 50 bucks to build, depending on the type of case you put it in. In fact the complete component count consists of 8 ICs, 9 capacitors, 4 diodes, 4 resistors, 2 LEDs, a 6 volt power tranny, and a DPDT switch. (Oh, and a bit of Vero-Board to build it on).

Theory of operation

• I include this section for the technically minded hacker. The unit is based on the use of 7 x CD 4066 quad bilateral switches configured such that one device switches 4 inputs and delivers 2 outputs. Thus 14 lines into 2 goes 7 times.

Now look at circuit 2.

You will notice that CD 4066 has 4 inputs, and 4 outputs that are controlled by pulling their respective enable lines high (Vcc via 1 Kohm) or low (0 volts (Gnd) via 1 K ohm). Okay, referring now to the CD 4066 pinout box, you will notice that pins 2, 3 and 9, 10 are respectively connected together. These form two independent outputs for the switching action.

The 4 inputs, pins 1, 4, 8 and 11 are grouped together to form a DPDT configuration. toggle action of the switch. The enable logic levels are discussed later in the article.

Graphically the switching action can be represented by the chart below.

E1 is pulled high, E2 is pulled low.

Consequently Y1 conducts via Z1 to output data line 1. The reverse is true when E2 is high and E1 is low. The opposite enable line MUST be pulled low to prevent the switch from floating between logic levels.

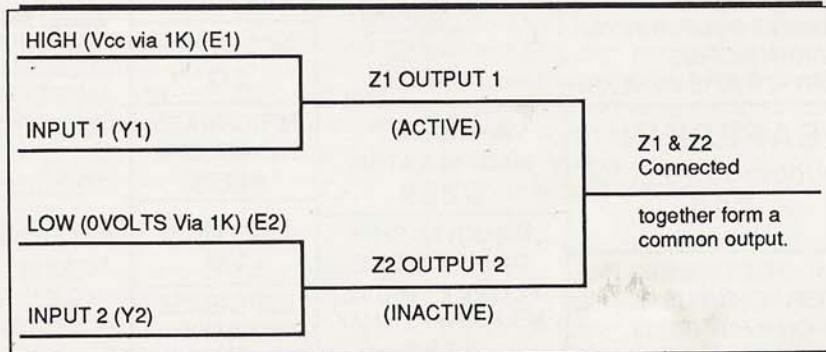
Note the figure above is only one half of the CD 4066, so you wind up controlling two data lines per device. Thus by observing the above, we can deduce only seven devices are needed to switch all the data lines used by Amiga and its peripherals. The peripherals being the printer and Digi-View unit.

Power for switch unit is derived by a six volt (250 mA) mains transformer, a full wave bridge, and the use of a LM 7805 voltage regulator to provide +5 volts DC (regulated). Power for the digitizer is derived from pin 14 on Amiga's parallel port, and one of the signal earth return lines (pins 17 - 25).

The reason I opted for separate power supplies is the fact that all the other devices running from an A-500 drag enough juice from the computer's power supply. I run two external drives, two Mbytes of external RAM, an A-501 and Digi-View from my A-500. The PSU got that hot I had to install a fan to prevent self-destruction of the PSU by overheating.

Okay, let's get down to the nasty stuff. As you probably know, there are 25 pins on the parallel port. A brief description is as follows:

Continued on page 42

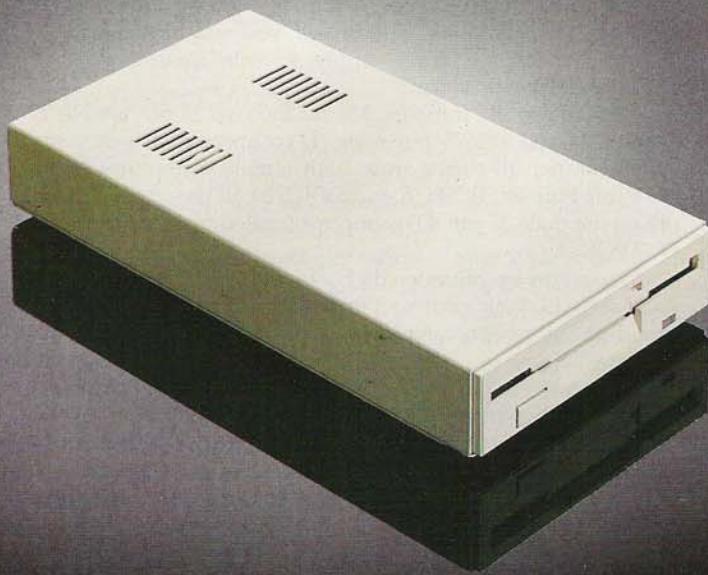


The switching action

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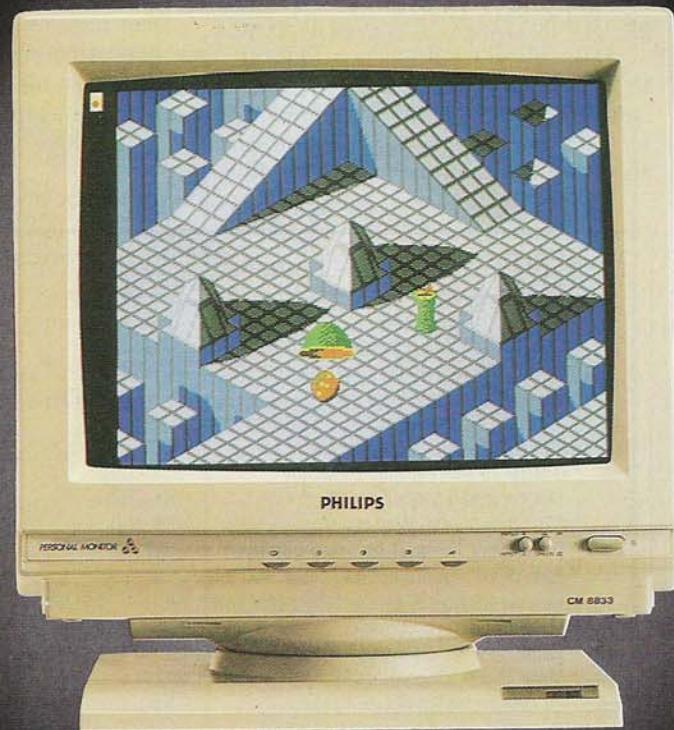
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- PIN 14 = +5 VOLTS (FOR DIGI-VIEW)
- PIN 15 = NO CONNECTION
- * PIN 16 = RESET
- PINS 17 - 25 = SIGNAL RETURN GROUND LINES

NOTE! DO NOT CONNECT THE SIGNAL RETURN LINES TO A FRAME EARTH AS DAMAGE WILL OCCUR TO AMIGA'S U7!!!

The "*" indicate which pins we will need to switch.

Construction

- I suppose it would be best to itemize parts needed for construction now. (See parts list below)

Having bought all the parts, the first thing to do is construct the link cable for use between the data switch and the computer. I chose to use crimp header type connectors because of their ease of use. Make this cable about 1 metre long; beware of long cable lengths when using ribbon cable as RF interference may occur from the monitor. This interference can cause a range of effect; from lock-ups to complete destruction of Amiga's U7.

When you construct the power supply:

DO NOT CONNECT EITHER +5 VOLTS TO AMIGA'S +5 VOLT LINE (PIN 14) OR 0 VOLTS (GND) TO THE MAINS EARTH, OR AMIGA'S EARTH RETURN LINES !!! (D CONNECTOR PINS 17 - 25).

FAILURE TO OBSERVE THIS IMPORTANT RULE WILL RESULT IN DAMAGE TO YOUR AMIGA.

THIS IS NO JOKE!!!! PLEASE USE SOCKETS FOR MOUNTING OF THE CD 4066 ICs, as these will be helpful in fault-finding if the unit breaks down. It is not only for this reason you should install sockets, also bear in mind that these ICs are CMOS devices and are static sensitive.

The next thing to do is build the board, completely isolating

Qty	Part	Circuit reference
7	Cd 4066 Quad bilateral switch	(U2-U8)
7	14 pin DIP IC Sockets	
1	LM 7805 +5 Volt regulator with heatsink	(U1)
4	N4001 Silicon rectifier diodes	(D1-D4)
2	Green LEDs (any type)	(LED1, LED2)
1	1000 UF 16 Volt electrolytic capacitor	(C1)
1	100 UF 16 Volt electrolytic capacitor	(C2)
7	0.1 UF 25 Volt ceramic capacitor	(C3 - C9)
2	1k Ohm 5% 0.5 Watt resistor	(R1, R2)
2	270 Ohm 5% 0.5 Watt resistor	(R3, R4)
1	DPDT Switch (<i>must be good quality</i>)	(SW1)
1	Strip of vero-board approx. 160 X 100 mm	
2	Female 25 pin "D" connectors (solder type)	
2	Male 25 pin "D" connectors (solder type)	
1	Female 25 "D" connector (crimp header type)	
1	Male 25 pin "D" connector (crimp header type)	
2 mtrs	26 Conductor flat ribbon cable	
1	Case to suit	
2	Packets of vero-pins	
1	240 Volt 1 Amp DPDT power switch (optional)	
?	Nuts, bolts, washers and grommet for power cable	

each CD 4066 socket from the next. A sharp drill is best used for this purpose. Install all parts, links and pins. Do not install the CD 4066 ICs yet.

Veropins should be installed on pins 1, 3, 4, 8, 10 and 11 on CD 4066 ICs. Use INSULATED wire links for the rest of the interconnections.

It is now time to double check all connections on the board for shorts and dry joints. If all is well, you may apply power to the unit and test the power supply. +5 volts should appear on pin 14 of every DIP socket.

Now comes the fun part. Mount the two 25 pin female 'D' connectors and the 25 pin male 'D' connector on case's rear panel. Jumper all earths from both female connectors (called from this time on: PORT A and PORT B), to the corresponding pin on the male 25 pin 'D' connector (called from this time on: OUTPORT).

These pins are numbered: 17, 18, 19, 20, 21, 22, 23, 24 and 25. Make ALL your earths separate. This technique will act as a shield on the ribbon cable going from the OUTPORT to Amiga's parallel port.

Next connect pin 14 from the OUTPORT to PORT B. This Digi-View's power supply.

Next connect all pins as follows: (and it SHOULD work)

IC	IC pin #	Port A pin #	Port B pin #	Outport pin #
U2	1	1	N/A	N/A
U2	3	N/A	N/A	1
U2	4	N/A	1	N/A
U2	8	2	N/A	N/A
U2	10	N/A	N/A	2
U2	11	N/A	2	N/A
U3	1	3	N/A	N/A
U3	3	N/A	N/A	3
U3	4	N/A	3	N/A
U3	8	4	N/A	N/A
U3	10	N/A	N/A	4
U3	11	N/A	4	N/A
U4	1	5	N/A	N/A
U4	3	N/A	N/A	5
U4	4	N/A	5	N/A
U4	8	6	N/A	N/A
U4	10	N/A	N/A	6
U4	11	N/A	6	N/A
U5	1	7	N/A	N/A
U5	3	N/A	N/A	7
U5	4	N/A	7	N/A
U5	8	8	N/A	N/A
U5	10	N/A	N/A	8
U5	11	N/A	8	N/A
U6	1	9	N/A	N/A
U6	3	N/A	N/A	9
U6	4	N/A	9	N/A
U6	8	10	N/A	N/A
U6	10	N/A	N/A	10
U6	11	N/A	10	N/A
U7	1	11	N/A	N/A
U7	3	N/A	N/A	11
U7	4	N/A	11	N/A
U7	8	12	N/A	N/A
U7	10	N/A	N/A	12
U7	11	N/A	12	N/A
U8	1	13	N/A	N/A
U8	3	N/A	N/A	13
U8	4	N/A	13	N/A
U8	8	16	N/A	N/A
U8	10	N/A	N/A	16
U8	11	N/A	16	N/A

Next plug in U2 - U8 making sure all the ICs are correctly orientated. If you've built the switch correctly, then all the CD 4066 pin 1's are located at the top left of each IC.

Test procedure

- Do NOT put your data switch into service until you test the operation of all its electronic switches! Sw 1 should be set to position '1'. Set digital pulser to 400 PPS and connect to pin 1 on PORT A.

Connect logic probe to pin 1 on OUT-PORT; you should get a signal. Toggle Sw 1 to position '2'; the logic probe should go dead as the signal is diverted to PORT B. If this is the case, then all is well so far. If PORT A remains active check the wiring immediately.

Next, leaving Sw 1 in position '2', swap the pulser to pin 1 on PORT B; the probe (connected still to pin 1 of OUT-PORT) should indicate a signal, confirming the switch has output. Now toggle Sw 1 back to position '1'; the probe should go dead as before.

Continue testing all switch gates in this manner until you are satisfied that all the switch gates are functional.

MAY OCCUR TO AMIGA'S U7!!!

Hints and tips

- You may like to customize the appearance of your data switch by adding a red led to indicate that power is being supplied from the Amiga to the Digi-View. It is also a nice touch to include a power switch for the mains, I used the neon illuminated type from Dick Smith.

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- Every possible care was taken in the development of this device and the manual, however, the Author waives any responsibility of any or all damage that may occur due to incompetent construction practices or any other causes of damage this unit may incur.

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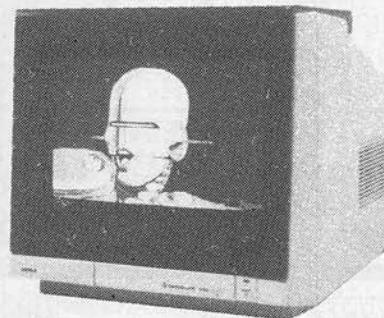
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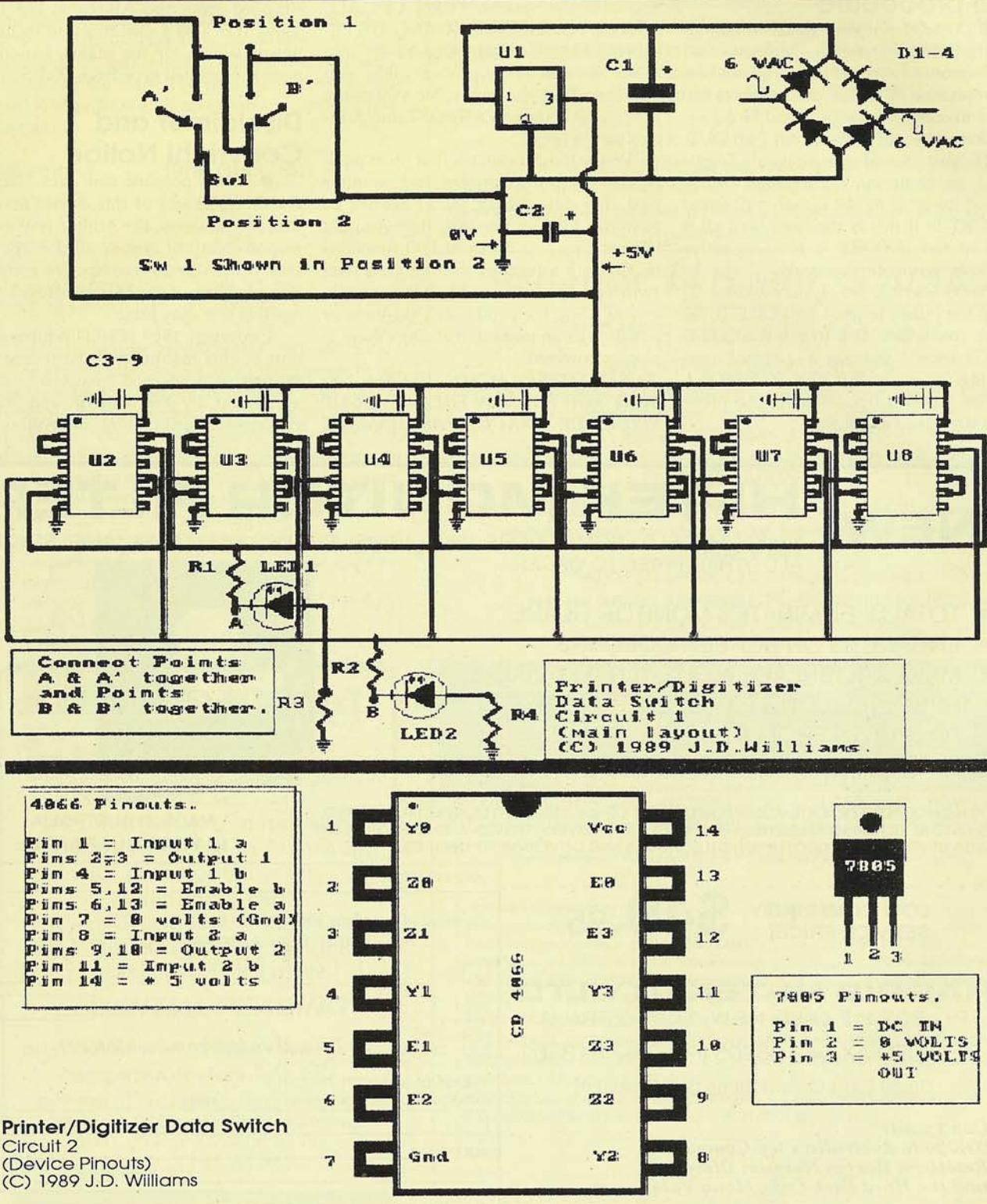
MONITOR TYPE				
PAYMENT: PLEASE INDICATE METHOD <input type="checkbox"/> VISA - MASTERCARD - BANKCARD				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OR	EXPIRY DATE <input type="text"/> <input type="text"/>			
<input type="checkbox"/>	CHEQUES, PLEASE MAKE PAYABLE TO: HARRIS HI-TEK PTY LTD			
PLEASE DEBIT MY CREDIT CARD				
MR/Ms/Mrs	SURNAME	INITIALS	SIGNATURE	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
ADDRESS <input type="text"/>				
POST CODE <input type="text"/>				
TELEPHONE No. IN CASE OF QUERIES <input type="text"/>				

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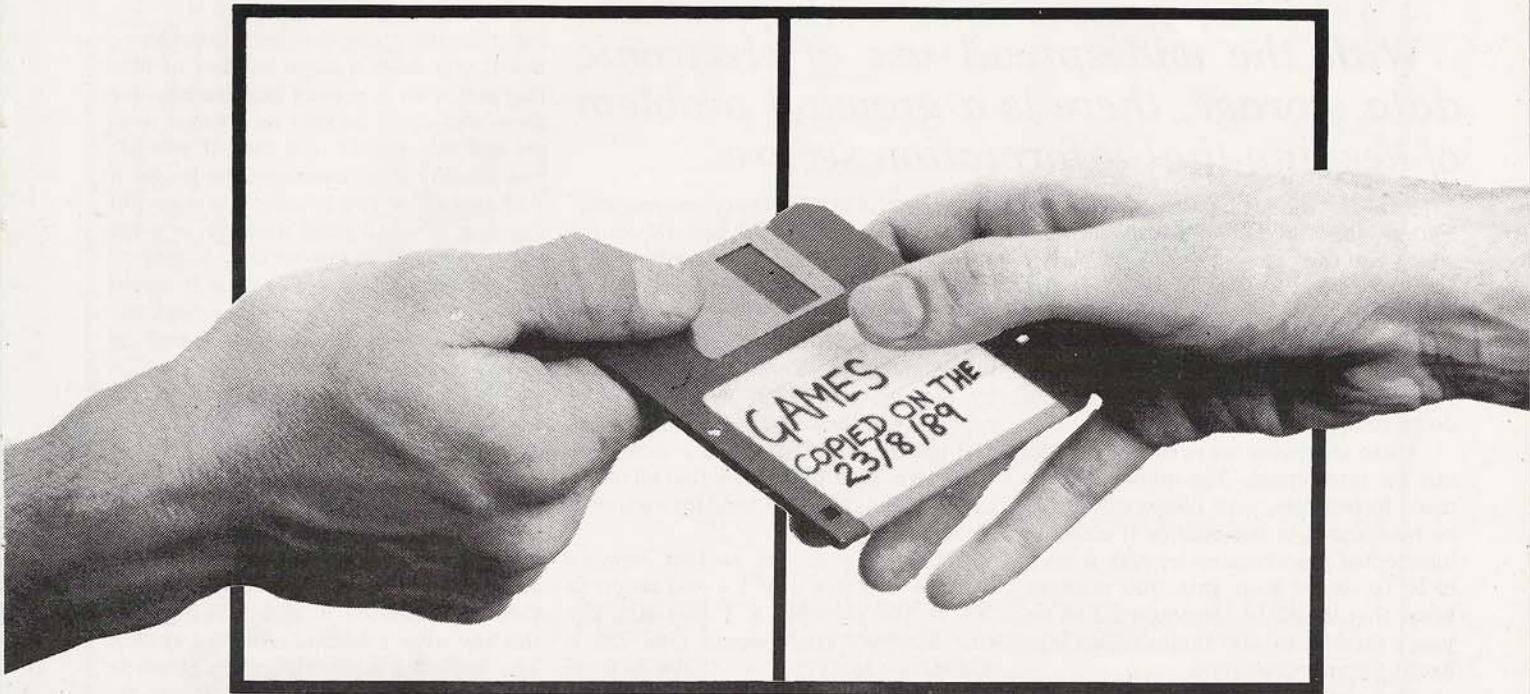
Conclusion

• I hope all get the benefit from this article and development time was not wasted. Anyway mine works like a charm, and personally I am happy with

its performance. I suppose the biggest kick comes when someone asks you where you got it from. Just look them in the eye and say: I built it myself. Smug hey? □



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Amiga BASIC - Data Encryption

by Brett Maxfield

With the widespread use of electronic data storage, there is a growing problem of keeping that information secure.

THERE ARE A plethora of electronic mail services and bulletin boards through which you can communicate with people across the street or across a continent. But none of them really offer a high level of security. Business people who would like to exchange confidential information using these services have no "safe" way of doing so in private.

There are many ways that your data can be intercepted. The phone system could be insecure, your floppy disk could be intercepted in the mail or it could be intercepted anywhere on its path from A to B. To secure your data, you must assume that it will be intercepted and devise a method to stop undesirables from reading your information.

One method of doing this is by encrypting your data before transmission. Encrypting is just the process of changing information in a certain way as to make it unreadable in its encrypted form. The process must obviously be able to be reversed by the intended recipient of the information in order for them to read it. The encrypted data should not resemble the original data in any way, otherwise fragments of the data could be understood. Any person intercepting the encrypted data will receive gibberish and will not be able to read it.

The AmigaBasic listing included with this article will allow you to do all of the above. The listing may seem deceptively short and puny, but the algorithm it implements is very effective. The encrypted file yields values from 0-255, and if you use a random key then the output will be totally random in content.

The security method I have used in the program involves the use of a key. Not the classic key but a string of numeric values. This string of numbers can be the ascii values of a text string or a list of random numeric values. While a text key may be easier to remember, it is much less secure. The input data can be a document file or any other AMIGADos file. The key is used to alter the input data in

such a way that it becomes unrecognisable without the original key. Of course all of the possible key combinations could be tried, but if you make the key long enough this will become practically impossible. The number of combinations in any given key (length known) is given by the formula 256^n where n is the number of characters in the key. But in real life the length of the key should be unknown. This then means that all of the combinations must be tried for each possible key length.

This gives us the revised formula $256^1 + 256^2 + 256^3 + \dots + 256^n$. For example, a 4 character key (for brevity's sake) would give $256 + 65536 + 16777216 + 4294967300 = 4,311,810,300$ combinations. This gives some idea of the security of say, a hundred character key. I will leave you to work out the number of combinations for this.

Random key

The above discussion assumes that you use a random key which has 256 possible combinations per character. It is possible to use an ascii string but the number of combinations and therefore the security will be halved. This is because you are only using the ASCII printable characters for the key (about 86 or so). The length of the key is also important as it is directly proportional to the amount of security given by a key. If you are encrypting a large file, you should use a proportionately larger key. It is not necessary to make the key length any longer than the input file length as the extra characters are not used. I recommend the random key because it gives a more randomly distributed output file and thus much better security.

The program will allow you to create a random key of any given length and save it to any AMIGADos device. But if you use a large random key and store it on a floppy disk, the physical security of

the disk containing the key is a problem. But if you have a large number of files that you wish to protect then the keys for these files could be kept on a single floppy and this placed in a safe. If you are just sending short messages, the program will also allow you to enter a text key. In the case of small sized message or a file that only requires low security, it may be better to use a text key because it would be easier to remember and would not have to be written down or stored on floppy disk.

The main reason that you will want to keep information secure is to transmit it over public communications equipment. The key should be kept secret between the persons who are to be able to decode or encode the data. It cannot be stressed enough that this key must be kept secure and possibly changed every now and then. It is advised that you do not send the key over a communications system. The key ideally should be delivered in person by you to verify it is going to the correct person. Remember, the key is the most important part of this security system. It can not be stressed enough that the key must be kept secure.

The enclosed AmigaBasic listing is heavily commented and people wishing to understand the working of the program should have no trouble. If you leave out all the comments when typing it in, the program becomes quite short.

The program will give you the option of producing a random key of any length and saving it to disk. You can also enter a text key from the keyboard. Large files should use a random key that is as long as possible. Smaller files should use a random key that is the same length as the file itself, or a text key that is as long as possible.

The program has no limits on key size except for AmigaBasic upper end array limit or available memory, whichever comes first. The maximum limit of an array is currently 32,768 bytes. As the output file contains values from 0-255, it must be sent as a program file using Xmodem or any file transfer protocol as trying to send the file as text would either make your modem go berserk or you would lose most of your file in a text filter.

To run the program you will need a file for the program to work on. We will run through an example session. Type in a small block of text and save it under the name "test". To use, run the program and it will ask if you want to Encrypt or Decrypt. First we must encrypt, type 'e' to continue. The program will then ask you for the input filename, for our test you should type 'test' and <return>. The output filename is the filename that you want the encrypted data to go to, for this example, enter "test.encoded". Both the input and output filenames can contain normal Amiga DOS volume names or directory paths.

Next you must define the key to be used, you can choose to enter a key from the keyboard or let the program create a random one. Type 'n' to enter a text key. Enter any text string (you will need to know this later) and press <Return>, the program will then get working and tell you when it is finished. One word of warning - if you try and load the

"test.encoded" (or any encoded file) into the AmigaBasic editor, do so at your own risk.

BEWARE! Chances are it will corrupt AmigaBasic or it will decide to do a spot of meditation. I believe this is due to the output bytes having values from 0-255 mucking up the internal LIST structures and trashing memory. If you want to look at the output, you are better off viewing it in HEX using another program (eg. Dirutil on the 1.2 Extras disk).

Now you can re-run the program and try to decode the "test.encoded" file. This time select decrypt and enter "test.encoded" for the source, and "test.decoded" for the destination. The program will ask if you wish to load a key file, for our test type 'n' and the program will prompt for a key string. Enter the key phrase you used when encrypting the file. The program will then go to work decoding the file. When it is finished, you should be able to load and read "test.decoded".

One important point to note if using a disk-stored encrypted file or key. Even though you delete or kill a file, some or all of its data will remain readable with a disk editor. This is because deleting a file only tells DOS that the sectors it used to occupy are now free for use. If no further files are put on that disk, or the sectors are not used, remnants of keys or non-encrypted data will remain even if you delete their files.

You must take pains that any unencrypted files or key files are or have not been on the disk you will be sending. Insert the volume name followed by a colon before the destination filename you give, MySendDisk:MyEncryptedFile. The operating system will then prompt for that volume at the appropriate time(s). Then only the output data will be on the named volume. Likewise, if you keep your keys on one disk then insert the volume name before key filename as above, MyKeyDisk:MyKeyFile.

To use the random key option, you re-

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Amiga BASIC

ply "Y" when the program asks "Do you want me to produce a random key". The program will get the length of the source file and display it. This is to help you choose the length for the key. Ideally, for maximum security the key should be the same length as the file to be encrypted. This would result in a perfectly random output file with no possible patterns (assuming the basic RND(x) function is truly random). If you are going to be using the same key for a number of different files, then it could be better using as big a key as possible.

Small messages or low security documents can be given satisfactory security by using a text key. Make a text key as long as is possible to remember, it is recommended practice to keep the key in your head. There is no reason to make the key any longer than the file to be encrypted, the extra characters are not used by the program.

There are many changes you can make to this program, it has been left 'bare' to minimise typing. This also allows you to customise and 'tinker' to your heart's content. You could trap errors in order to give the program a bit of polish.

One grumble, the program is very slow on large files and could thus benefit from being put through a basic compiler or written in another language that would be faster. For people who wish to convert this program to another language, the listing is heavily commented. Due to the basic (no pun intended) but very effective algorithm used, this program would be particularly suited to being re-written in machine language. The part of code that prints the percentage could be removed, but I find it handy while waiting for large files to be processed.

If you want a longer key than memory permits, you could leave the key as a file on the disk and load in the key byte by byte as it is required by the program. This would allow massive sized keys for those bigger programs. This has not been implemented as it would not be practical for normal use but could be good to secure source code listings which can be rather large. Remember that there is no extra security benefit by making the key any longer than the file to be encrypted. If you do use a key disk, you could have the program automatically insert the volume prefix. Happy tinkering! □

```
REM *** This program cyphers or decyphers any given ***
REM *** file using any given key ***
REM Written by Brett Maxfield 13-07-89
```

```
'find out what user wants to do
CLS:PRINT"<E>ncrypt or <D>ecrypt"
loop:
mode$=INKEY$
IF mode$="" THEN loop
mode$=UCASE$(mode$) 'make sure not
lower case
IF mode$<>"C" AND mode$<>"D" THEN loop

'get the filenames
CLS:INPUT"Enter Source Filename : ",s$
CLS:INPUT"Enter Output Filename : ",o$

'only do this bit for encrypting mode.
IF mode$="D" THEN EnterCode
CLS:INPUT"Do you want me to produce a
random key?";r$
r$=UCASE$(r$):IF LEFT$(r$,1)<>"Y" THEN
GetKey

'get file size to help user choose size
OPEN s$ FOR INPUT AS #1:l=LOF(1):CLOSE
#1
'get length of key to create
CLS:PRINT"Filename : ";s$
PRINT"File Size : ";l:PRINT
INPUT"How many Characters";n
'set up key array
DIM key%(n):l=n
'get key filename
INPUT"Enter Key FILENAME: ",key$
PRINT:PRINT"Writing key file - ";
OPEN key$ FOR OUTPUT AS #1 LEN=2000
c=0
FOR x=1 TO n
  a=INT(RND(1)*256) 'pick number from
  0-255
  PRINT #1,CHR$(a); 'write key byte
  key%(x)=a
  're-seed random number generator to
  avoid
  'repeating Basic random number list
  IF c=100 THEN RANDOMIZE TIMER:c=0
  're-seed randomiser
NEXT x
CLOSE #1
PRINT "Complete.":FOR x=1 TO 20:NEXT x
'wait a little bit
GOTO main

EnterCode:
'ask if user has a pre-done key file
CLS:INPUT"Load a Key file ?";r$
r$=UCASE$(r$):IF LEFT$(r$,1)<>"Y" THEN
GetKey

'input key filename to read
CLS:INPUT"Enter Key FILENAME: ",key$
'load key file into array from file
OPEN key$ FOR INPUT AS #1 'open key file
c=0:n=LOF(1):DIM key%(n) 'set up the key
array
WHILE NOT EOF(1)
  c=c+1
  key%(c)=ASC(INPUT$(1,1))
WEND
CLOSE #1
```

GOTO main

```
'input key from keyboard
GetKey:
CLS:INPUT"Enter Key: ",key$
n=LEN(key$):DIM key%(n)
'convert string to array
FOR x=1 TO n
  key%(x)=ASC(MID$(key$,x,1))
NEXT x

main:
'open input and output files, errors
'left to amigabasic.
OPEN s$ FOR INPUT AS #1 LEN=10000
OPEN o$ FOR OUTPUT AS #2 LEN=10000

l=LOF(1)
CLS:
'tell the user what is happening.
IF mode$="C" THEN PRINT "Cyphering in
Progress ..."
IF mode$="D" THEN PRINT "Decyphering in
Progress ..."
'print some info
PRINT:PRINT " 0% Complete"
PRINT:PRINT "File Size : ";l;"Bytes."

c=0:a=l/100:p=0
WHILE NOT EOF(1)
  byte$=INPUT$(1,1) 'Input character from file
  c=c+1
  'only print percentage if it has changed
  'to save time.
  IF c/a >= a*p THEN
    LOCATE 3,1:PRINT USING"###";c/l*100
    p=p+1
  END IF
  Encrypt 'Call subroutine to convert byte
  PRINT#2,byte$; 'Send it to the output file
WEND
CLOSE #1,#2
LOCATE 7,1

SUB Encrypt STATIC
'declare variables we wish to have
'passed to this routine.
SHARED key%(),keybuf,byte$,mode$,n
  delta=key%(keybuf)
  'if user is decyphering then make
  'current key character negative
  'in order to have the opposite effect
  'to cyphering.
  IF mode$="D" THEN delta=-delta
  byte=ASC(byte$)+delta
  'make sure new value stays in range
  '0-255
  IF byte<0 THEN byte=byte+256:GOTO past
  IF byte>255 THEN byte=byte-256
  past:
    byte$=CHR$(byte)
    'increment key character index
    keybuf=keybuf+1
    'if all characters in key used then wrap
    'around to beginning of key.
    IF keybuf>n THEN keybuf=1
END SUB
```

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Public Domain Update

by Andrew Farrell

THIS MONTH HAS seen yet another flood of Fish disks, and other notable public domain offerings. Our Fish collection is now up over the 280 mark. See the advertisement on pages 32 and 69 for how to order a catalogue disk or any public domain disk.

Newtek Demo Reel III

• The masters of HAM, Newtek, have pieced together another brilliant collection of pictures, short animations and weird sound effects to match on their latest two disk set. Some of the images from this latest instalment are featured on this page. The one we couldn't show you uses the new 768 x 480 HAM mode. Must be seen to be believed. As the screen says get close, you just can't get close enough to see the dots. We're talking realism city! One image only in that mode, plus a whole bunch of other original stuff make this set another collectable item. Best run with two drives. (Prime Artifax 02 817 0011 \$8.95)

Amiga-Live! # 4

• Another three disk suite of programs from around the PD traps combined onto one disk for convenience. As usual, the selections are made for their practical, entertainment or novelty value. Most are ideal for the casual Amiga user, and may be operated from the Workbench environment. Here's what's on issue four:

Disk One

- **GravSim** : An education program which simulates up to six planets exerting a gravitational force on each other. The resulting trajectory is then plotted. User input enables the size, speed and placement of each body to be varied.

- **AmiGantt** : Version 3.0 of this useful Project Management program which includes extensive instructions and a mouse driven interface - a big improvement over earlier versions. Ideal for managers, students learning about business, or anybody who wishes to plan their time better.

- **SuperLines** : The ultimate Workbench lines demo. You can vary just about every aspect including speed, size, colour, time and length. Interesting to watch!

- **FixDisk** : Soon to be included in our Disk-Utils theme disk - this is a must for every disk user on a budget. FixDisk helps restore lost files, recover damaged disks and generally undo a lot of common DOS problems!

- **C64Emul** : Novelty program that gives hilarious responses to commonly entered C64 commands. Party gag material.

- **Maze** : This one will quiet the kids. From simple 15 second mazes to several hour teasers. Choose a level, wait a few seconds for the maze to appear, then use the mouse to solve the maze. Very challenging.

- **ImageLab** : Image processing from simple averaging to Fast Fourier Transformations. Extensive documentation. Ideal for manipulat-

ing images, works in many resolutions. Some fantastic effects are possible.

- **Funpaint** : A powerful program for the price (almost free!). Works in nearly all Amiga graphics resolutions including HAM mode and extra-half-brite. Only includes very basic drawing functions - still a great program for introducing yourself to graphics. Ideal cheap HAM mode program!

Various others including : MacGAG, Calender, Hex/Dec/Bin conversion and Flipper (an Othello type game).

Disk Two

- Two demonstrations - one from a U.K. Amiga Computing magazine full of fancy graphics, a fast sound track, spectrum analyser and more. The other is a ray traced animation of a gymnast on the uneven parallel bars, complete with twists and turns and a dismount - sound effects too.

Disk Three

- **Paccer** : A Pacman type game.

- **MirrorWars** : One or two players, bounce bullets through a maze of mirrors to try and defeat the other player. Requires careful strategy and dexterity.

- **esouM** : Run this on a friend's Amiga and reverse the mouse movements for a little fun confusion.

- **Tiles** : A Shanghai type game - remove pieces from a pyramid of tiles with patterns on each - strategy and patience required.

- **Network** : A screen gag!

- **Mischief** : The ultimate annoying background program. Whack it into a friend's start-up sequence for a little fun!

- **BallyIII** : Action/strategy game - box in the lay area avoiding the live sparks. Improvement on earlier versions various levels. Recommended!

- **Emporos** : Trading game across various countries. Buy and sell goods to make a profit in your travels.

- **Arcade game JAR** : Boot the disk for this Boulderdash type game.

- **Amiga-Live!** issue four sells for \$24.95, not bad value considering the amount of software crammed onto three disks.

There is no source code included with any of these programs, so you don't get any wasted space. Most programs include original instructions as provided by the author, or Fred Fish.

- **AmigoTimes** : Disks 1.2 - 1.9 are now available for \$6 each. They contain a mixture of programs, some of which refer to specific articles in the corresponding issue of *AmigoTimes*. All programs are public domain. Some demos including, however mainly utilities and workbench extras.



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Cartridges and Eproms

by Mario Annetta

MANY PEOPLE WHO own a Commodore 64 would also have one or more cartridges which plug into the back, giving instant access to a game or utility program. Inside the plastic case is a ROM chip containing the program, which takes the place of a certain section of the computer's internal memory. Now that EPROM programming devices are readily available for the Commodore 64, some people are beginning to produce their own custom made cartridges. Before going any further, an explanation of EPROMs may be required.

EPROMS

• EPROMs are Erasable Programmable Read Only Memories. They are memory chips which, when programmed, will keep a permanent record of the information stored on them, just like a normal ROM. EPROMs differ from normal ROMs in that they can be erased and reprogrammed. Both of these processes (erasure and programming) require special equipment that is available for use with the Commodore 64. Two well known EPROM programming devices are available from Datel Electronics (England) and Jason-Ranheim (USA), and cost around \$120-\$180. The most common memory sizes of EPROMs are 8, 16 and

32 kilobytes, and they cost about \$10-\$14 each.

The most popular use for custom programmed EPROMs is in cartridges.

However, it is also possible to make replacement chips for the computer's own internal ROMs, such as the KERNEL ROM. Most people would know of the Cockroach Turbo ROM, which is a commercially available EPROM that fits in place of the KERNEL ROM, and contains a modified version of the computer's operating system.

normal ROMs), and in about fifteen minutes the chip is erased. These UV tubes are very powerful and can damage the eyes if looked at directly. Sunlight will also erase the chip, but it is estimated that it would take about one week! Electrically erasable PROMs (EEPROMS) are also available which are erased in a similar way to the method used for programming.

What do you do with the Eprom?

• As mentioned, the most common use for an EPROM is in custom made cartridges. Cartridges offer quick and convenient access to a program without needing a disk or tape drive connected. They are especially useful for often used utility programs such as the following which I placed onto a 32K EPROM: *Metabasic*, *Proofreader*, *MLX*, *Program Lister*, *Disk Editor*, *Directory Plus* and *Micromon*. When I switch my computer on with the cartridge plugged in, a menu listing the above programs comes up instantly, and I simply select the program I want to use with the touch of a keyboard button.

The menu program that is activated on switching on, also incorporates a download routine which transfers my choice of program from cartridge into the proper computer RAM location. It needs to be written in machine code and placed onto the EPROM chip along with the other programs. The disk supplied with the Promenade already has some suitable download routines on it that you can use, but I wrote my own.

How cartridges work

• When you switch your computer on, it activates a reset routine that is part of the KERNEL operating system. If this reset program detects the presence of a cartridge plugged into the expansion port, it allows the start-up routine written on the cartridge to take over. This start-up routine is the menu/download program that was previously mentioned.



Diagram 1

Before the cartridge ROM can be recognised by the computer, the cartridge must ground pin number nine on the expansion port. This makes the computer substitute 8K of cartridge ROM for the 8K of RAM at locations 32768-40959 (\$8000-\$9FFF). If pin number eight is also grounded, the computer also substitutes the next 8K of memory (BASIC ROM at \$A000-\$BFFF) for the cartridge ROM. This would leave you without the BASIC programming language, but it means that a total of 16K of cartridge memory can be recognised as the computer's own internal memory. Sometimes the standard BASIC ROM is deliberately switched out in order to replace it with a more advanced BASIC held on cartridge.

16K is the maximum amount of computer memory that the cartridge can take control of, but you can have cartridges larger than 16K. If for example you had a 32K cartridge, then the computer can only access half of it at a time. But by alternating which half it is looking at, you can effectively access all 32K of cartridge ROM. This is called bank switching and generally requires that another smaller chip be installed on the cartridge board which is dedicated to this task. It is possible to access a very large amount of cartridge memory by using suitable bank switching.

Cartridge design

Let's assume that you have programmed your own EPROM chip and you want to put it into a cartridge. There are commercially available cartridge boards complete with socket that you simply press the chip into and it's ready to use. They can be fairly expensive, but they provide an easy cartridge construction method. If however, you have the facilities for making up your own circuit boards, and you would like to learn how to design a suitable circuit, then this article should help. You should have an Ex-

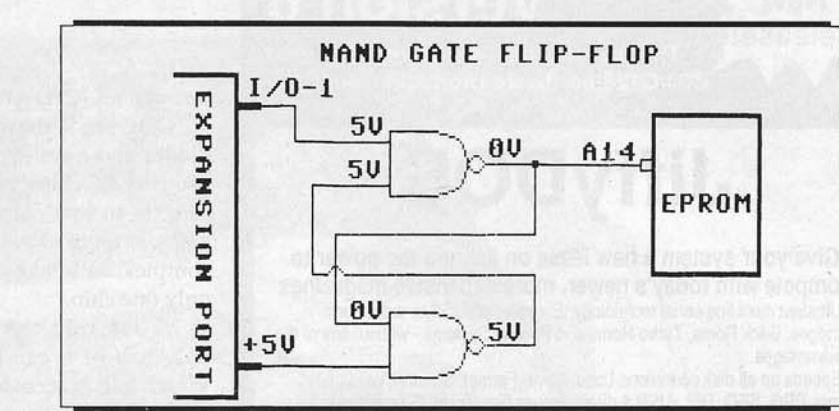


Diagram 3

pansion Port pinout diagram handy, and if possible, a pin diagram of the chip you're using. Note that the pinout diagrams in some Commodore 64 User Manuals have the orientation of the Expansion Port pins reversed. The correct diagrams have pin 1 and pin A on the right hand side.

One thing common to all EPROM chips in cartridges is that the eight data lines from the expansion port (pins 21 - 14) need to connect to the eight data pins on the chip (pins 11 - 13 and 15 - 19). The same applies to the port address pins from A0 to A12 (pins Y - K). Connect them to the appropriate pins on the chip (diagram 1 illustrates the pin locations for an 8K chip). A 16K chip has an additional address pin to be connected (A13 to pin 26), and a 32K chip has one more that (A14 to pin 27). After this you connect the 5V line to pins 28 and 1 (and 26 and 27 on 8K chips), and GROUND to pin 14, and that's the easy part finished.

What's left for an 8K chip, is to connect the computer's ROML line (pin 11) to both the CE and OE pins on the chip (pins 20 and 22). Then join the computer's EXROM line (pin 9) directly to one of the computer's ground pins. Then hopefully, if you've programmed the chip correctly, it should work. As you can guess,

16K and 32K chips will require a variation on these last two steps, but firstly I will explain what EXROM and ROML do.

EXROM (pin 9) and GAME (pin 8) are two control lines that need to be set in order for your cartridge ROM to be recognised by the computer. They are each set by connecting them directly to ground. When EXROM is grounded, it causes 8K of external ROM in the cartridge to appear at locations \$8000 - \$9FFF in the computer. Grounding GAME as well will make 16K of external ROM appear at \$8000 - \$BFFF, causing BASIC ROM to be switched out. An 8K cartridge will only need to ground EXROM, but a 16K one needs both grounded. A 32K one also needs both grounded, plus a bit of trickery called bank switching, which will be discussed later.

As all memory chips in the computer are constantly connected to the data and address busses, they each have a chip enable pin which only turns on the chip that is currently being addressed. EPROM chips also have such a pin - two in fact, called chip enable (CE) and output enable (OE). Even though the computer recognises that the cartridge ROM occupies \$8000 - \$9FFF with EXROM grounded, the chip still needs to be switched on at the right time. ROML is the line that enables the chip when locations \$8000 - \$9FFF are accessed, so it needs to be connected to CE and OE on an 8K chip.

Problems arise when you use a 16K chip. It needs to be enabled both at \$8000 - \$9FFF and at \$A000 - \$BFFF. ROMH (port pin B) turns on the chip occupying locations \$A000 - \$BFFF, so theoretically, both ROML and ROMH need to be connected directly to the chip CE/OE pins. This isn't possible because the two lines would short each other out, so you need to connect them to the chip indirectly

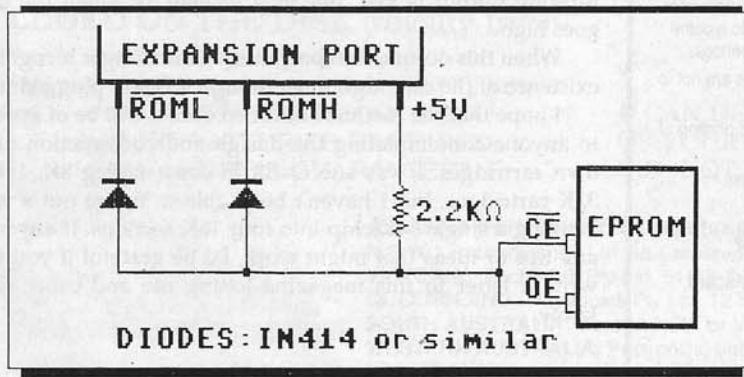


Diagram 2

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through an AND gate.

Diagram 2 shows how to construct such a gate using two diodes and a resistor. Note that a way out of this problem is to use two 8K chips instead of one 16K chip, so ROML connects directly to one chip, and ROMH to the other. But using two chips is more expensive and makes the cartridge board more complex, so I have confined the discussion to techniques using only one chip.

A 32K chip can be connected similarly to a 16K chip, but only half of it can be accessed by the computer at one time. Which half is accessed depends on whether pin 27 (A14) is connected to ground (enabling the lower 16K), or to the 5V line (enabling the upper 16K). If you could get the computer to automatically alternate the signal at pin 27 between 5V and 0V, you could access all 32K of chip memory. This technique is called bank switching, and I will describe the method that I use to bank switch 32K chips.

My method involves switching once only from the lower 16K bank, to the upper 16K. This means that before the switch is made, I need to transfer all the data held in the chip's lower 16K into the computer's RAM, as I won't have access to it after switching to the upper 16K. This is not a problem as I generally transfer both 16K banks from cartridge to computer RAM, then switch the chip off altogether freeing up the 8K of RAM and 8K of BASIC ROM that it took over.

To switch the banks, I use a flip-flop that I construct out of two NAND gates (see diagram 3). For the NAND gates I use half of a 7400 quad NAND chip. Connected to the input of the flip-flop is I/O-1 (pin 7) from the Expansion Port. This pin goes low whenever locations \$DE00 - \$DEFF are either written to or read from. So if you include the command LDA \$DE00 in your start-up program when you want the switch to occur, this will make I/O-1 go low setting the flip-flop output to A14 high, thereby switching banks. The voltages shown on the diagram represent the state of the flip-flop before it is set by I/O-1.

I mentioned previously that I usually transfer all the cartridge data to computer RAM, then switch the whole cartridge out. This is achieved with another flip-flop similar to the one described above, but with two differences. Instead of getting its input from I/O-1, it gets it from I/O-2 (pin 10). This pin is activated when a read or write occurs at \$DF00 - \$DFFF, so you use LDA \$DF00 when you're ready to turn the cartridge off. The output of the flip-flop goes directly to both EXROM and GAME, so that they both start out grounded (0V) when the flip-flop output is low, but they receive 5V when the output goes high.

When this occurs, the computer will no longer recognise the existence of the cartridge, even though it is still plugged in.

I hope that the methods outlined above will be of assistance to anyone contemplating the design and construction of their own cartridges. I was successful in constructing 8K, 16K and 32K cartridges, but I haven't been able to figure out a way of banking a single 64K chip into four 16K sections. If anyone has any tips or ideas that might work, I'd be grateful if you would write a letter to this magazine letting me and other readers know. □



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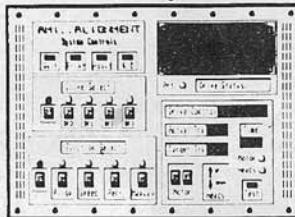
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64/128

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The Mega Entertainment Section

Edited by Phil Campbell

That's Entertainment

Entertainment news and views from right around the planet.

New joysticks from Konix

• Questor are now licensed agents for the well respected KONIX range of joysticks. That means you can now buy a fabulous 500XJ stick that fits neatly in the palm of your hand for a mere \$29.95, or \$34.95 with the auto fire option. My advice? Go for auto-fire, but make sure you switch it off to play *Space Ace*! But more of that later. You might like to check out the SpeedKing joystick range too - funny shaped, but apparently quite effective.

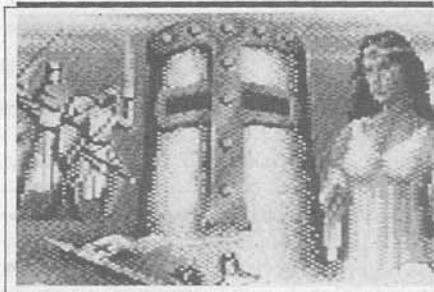
Ubisoft release Iron Lord

• Questor's Tim Allison has been waiting almost a year for *Iron Lord*, just released by Ubisoft for the Amiga. If this game is anything like as good as Ubisoft's *Pro-tennis*, then we're in for a real treat. Stay tuned for more details.

Extra time for Kick Off fans

• Give your favourite game a face lift

with *Extra Time*, an add on disk that gives *Kick Off* a whole range of new playing surfaces and players. At just \$29.95, this will give *Kick Off* a whole new lease on life.



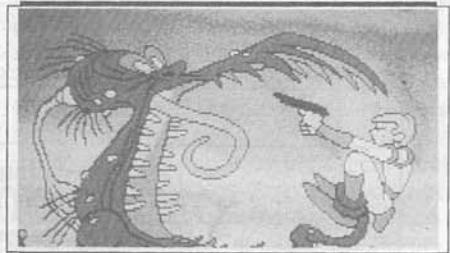
Iron Lord

Dr Doom's Revenge

• British software house *Entertainment International* have just released *Doom's Revenge*. Help your favourite super heroes fight off the bad guys and save the world - providing Spiderman and Captain America are your favourite super heroes.

Space Ace arrives at last

• Hang on to your hats, 'cause here it is. The most sought after game since *Dragon's Lair*. *Space Ace* landed on my doorstep this morning, and so far I've learned four things. First, it looks just as good on screen as we all expected. Second, it's darn hard to play - even harder than *Dragon's Lair*, partly because there are no flashing objects to give you timely hints. Thirdly, Amiga hard disk users will be disappointed - floppy only, though loading routines are much faster than *Dragon's Lair*. Finally, make sure your Auto-fire switch is off - otherwise the game will make a funny beeping noise, and everything will go crazy! □



Space Ace

VIC 20 screen?

4. How many bytes are free when you turn on your Commodore 64?
5. What do the initials S.I.D. stand for?
6. Which of these chips are NOT in an Amiga -
 a) AGNES
 b) GARY
 c) CYNTHIA
7. How many bytes are free on a standard, unexpanded Amiga workbench?
8. How many hours per week can you play a computer game without becoming socially introverted?

Entertainment section Mega Quiz

• How well do you know your gaming history? What about a bit of technical trivia? Get out your back issues of *Australian Commodore and Amiga Review*, get out your technical manuals, and try this quick quiz! Send your answers to Phil Campbell, PO Box 23, Maclean NSW 2463 by March 10th 1989, and you could win a great new game! If you don't know the answers, make them up. One last thing ... make sure you answer the final question so we'll know what sort of computer you've got, just in case you win!

tridge originally cost?

4. What VIC 20 cartridge was a crash-hot copy of *Pac-man*?
5. Why was the game withdrawn from sale?
6. Name two *Scott Adams Adventures* released on the VIC 20
7. Name two VIC 20 games by Jeff Minter.
8. What software genius was the brain behind the Llamasoft company?
9. What historic game provided the inspiration for *Arkanoid*?

Section 1

• Down Memory Lane

1. When did Commodore release the VIC 20 computer in Australia?
2. Name two original VIC 20 game cartridges.
3. How much did a VIC 20 game car-

Commodore and Amiga Review 58

Section 2

• Technobabble

1. What is the starting address for screen memory on a Commodore 64?
2. What is the address of the first sound register on a VIC 20?
3. How many colours appear on a

Section 3

• Back to the Present ...

1. What English software house released games named *Fish*, *The Pawn* (not prawn, *Pawn*) and *Corruption*?
2. Who wrote *Que-dex* for the Commodore 64?
3. What is the country of origin of TI-

TRIS?

4. Name three AMIGA golf simulations.
5. Name three Commodore 64 soccer simulations.
6. Name one other title in this series - *Defender Of The Crown*, *King Of Chicago*, *Rocket Ranger* ...
7. What village is the setting for *Targhan* on the Amiga?
8. Name five Australian entertainment software distributors.
9. Name the top three Australian entertainment software magazines. What's that? There's only one? OK - name it.
10. What sort of computer have you got? □

Letters to the editor

● A nice selection of mail this month - keep those letters, hints and tips rolling in. Address all mail for the entertainment section to:

Phil Campbell,
P0 Box 23 Maclean
NSW 2463

● Just thought I'd tell you again how good the magazine is looking lately. I've decided to start up a hints and tips service for Commodore 64 and Amiga users. Could you please print my address, so people can send their queries to me with a stamped self-addressed envelope, thanks. My address is:

Cosmic Proportions: C/O Paul M
19 Redlynch Road Salisbury North
SA 5108

Thanks again
Paul

ED: Thanks, Paul. Your hints and tips service will help a lot of readers. Glad you're enjoying the magazine.

● I'm just sending in some high scores for the following games. ... *Test Drive*, *Test Drive 2*, *Outrun* and *Crazy Cars*. It may sound like I'm a car games fanatic. Actually it's just that I can get the knack of these games more easily than others. The well known tip for *Test Drive*, holding the button on while going around the corner, doesn't work with *Test Drive 2*.

Some of the game's crash effects are really funny. In *Test Drive* you only get a smashed windscreen after a head-on with a tree at 320km/h! *Grand Prix Circuit* and *Lombard Rally* have much the same style. I prefer games that show you more realistic damage, like how much your bodywork is crumpled.

That just about wraps up my letter. I think it would be good for your magazine if you can get more than three colours per page and hopefully "That's Entertainment" gets as big or bigger than "Adventurer's Realm".

Yours in AMIGA Gaming,
Daniel Harrison (13)

ED: Thanks for your long letter, Daniel. I agree with your comments about the crashes in *TEST DRIVE*. They are pretty disappointing. Check out *CONTINENTAL CIRCUS* for some good driving action and excellent crash effects.

● This is Chris Byrne again with some more tips and high scores. Thanks a lot for publishing the last set. Quite a few people have corresponded with heaps of tips. I was searching through my album of hints and found a couple of oldies that might be good for some readers. I have also included some new high scores and believe me I had to thrash these games to achieve some of them. Your section is my favourite, and it brings life back into the Australian Commodore Review. Keep up the good work.

Chris Byrne

ED: Thanks for the hints and high scores. Keep sending them in, and the magazine will keep on getting bigger and better! □

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Amiga Hints and tips



● This month's pile of hints and tips come to you courtesy of the following readers: Chris Byrne, Luke Lynde, and the mysterious Paul M, of Salisbury North, SA. Thanks, guys.

● Many readers are fans of the amaz-

ing game *Populous*. Here's a selection of code words to take you through to the higher levels.

- 9. Burwildon
- 20. Shadted
- 23. Sadwillo

- 32. Shidiehole
- 36. Calozboy
- 38. Swaingpal
- 40. Eoamelas
- 50. Hobozjob
- 60. Haminmar
- 90. Verytory
- 97. Flirtihole

● Paul M. included about 100 more codes. If you want a copy of the full list, write to him at the address in the Letters section. □

Commodore 64 hints and tips



Ghostbusters

● Type your name in as Andy, and your account number as 777 for a lot of cash.

Robocop

● Reset, then POKE 44410,0 and sys 32768 for infinite lives.

Spin Dizzy

● While playing, hold down the letters P A U L for extended time.

Savage

● Codewords for level two and three are SABATTA and PORSCHE.

Gauntlet

● Reset, then POKE 49004, 96 and SYS 4352 for infinite lives.

Living Daylights

● Reset, POKE 4390,173 then SYS 4352 for infinite lives.

Parallax

● The passwords for the 5 levels are STACK, JEWEL, AARCH, SALON and GLOBE.

Hawkeye

● Typing VALSSPELER on the title screen will give you infinite lives.

Wizball

● Type WIZBORE twice on the title screen and you'll be invulnerable. □

Vegas Jackpot wanted

● Does anyone know where to get the C64 cassette version of this game? Urgently wanted by a devotee whose copy doesn't work any longer. □

Hall of Fame

Amiga

Arkanoid - 976,548 Kamikaze Andy
Bubble Bobble - 1,009,000 Michael Scanlan
Continental Circus - 290,000 Phil Campbell
Crazy Cars - 34920,680! Daniel Harrison
Denaris - 53,900 Peter Evans
Dragon Ninja - 105,030 R Zagami
Double Dragon - 116,204 R Zagami
Gee Bee Air Rally - 307,466 Kamikaze Andy
Hybris - 947,818 Kamikaze Andy
ISS - 1,420,450 G Smyth
Karate Kid II - 41,336 Owen Webster
Leatherneck - 83,300 Owen Webster
Major Motion - 50,658 Owen Webster
Menace - 996,481 Kamikaze Andy
Mindwalker - 306,214 P Schumacher
Mousetrap - 10,120 Craig Webster
Operation Wolf - 344,800 John Boyle
Outrun - 8,710,989 Daniel Harrison
Offshore Warrior - 626,345 Jacob Booth
Pacmania - 556,280 Ian Malcolm
POW - 106,065 R Zagami
Sidewinder - 419,350 Shenouda Makarie
Speedball - 10,335 GS and PS
Starwars - 2,296,786 Ian Malcolm

Sword of Sodan - 364,750 Kamikaze Andy
Test Drive - 103,981 Daniel Harrison
Test Drive 2 - 183,128 Daniel Harrison
Tetrix - Level 100 Luke Tattersall
Typhoon - 54,255 Owen Webster
Whirligig - 7,428 Jonathan Scowen

Commodore 64

Bangkok Knights - 36,800 Nick Van Heeswyk
Bomb Jack - 344,560 J Jacobs
Bubble Bobble - 2,600,680 Ryan Tan
Fast Break - 136 to 9 Chris Byrne
Giana Sisters - 69816 Nick Van Heeswyk
Handball Maradona - Level M Nick Van Heeswyk
Hawkeye - 49,300 Chris Byrne
Ikari Warriors - 93,000 Paul Millward
Int. Karate - 113,700 Nick Van Heeswyk
Operation Wolf - 98,500 Chris Byrne
Paperboy - 4,650 Chris Byrne
Que-dex - 639 Chris Byrne
R-Type - 548,310 Nick Van Heeswyk
Robocop - 82,250 Tim Lockwood
Salamander - 235,300 Paul Millward
Street Fighter - 127,050 Chris Byrne (clocked)
Thundercats - 57,500 Chris Byrne
Target Renegade - 330,450 Chris Byrne (clocked)

AMIGA



AMIGA

Andrew Baartz takes a journey through uncharted territory with Targhan.

Does he like what he finds? You bet ...

EDENGARHN. A QUIET village set deep in a green and fertile valley. I am Targhan, the village chief (me Targhan, you Jane?). In the local lingo my name means "the one who will come back." Prophetic words, because even though I regularly get wiped out, this is a game I keep coming back to.

Targhan is an action adventure game with superb graphics and obvious attention to detail. Ripping good stuff.

Mind you, stepping into the shoes of a young village chief is no easy task. It seems as if almost everybody is opposed to Targhan's very existence. Fortunately, Targhan is no wimp. He can usually dish out more than he has to take.

As a boy, Targhan was prepared for his vocation as chief of Edengarhn by the old wizard Athna-An. Although he has been long dead, Athna-An puts in a brief appearance every now and then, and can be quite useful.

Naturally, there's more to the game than hanging round in Edengarhn opening the local flower show and stuff like that. Targhan is actually the chosen one - chosen from birth for the ultimate quest - a quest that will take him from his beloved Edengarhn to the castle of the Evil One, requiring him to traverse the dense Forest of Luneclare into the Mountains of Clorg and beyond, to the temple guarded by the evil sentries. Phew!

As the quest begins, the game takes the form of a fairly standard "beat-em-up" - perhaps in this case it could better be termed a "slice-em-up", as Targhan is pretty hot with the blade. The odd reverse swordthrust, or even transverse thrusts in rapid succession, are extremely effective. When confronted with the Dwarfs in the tree houses of the Forest, a crouching swordthrust is the way to go - after all, these guys are short. A few kicks to the head will finish them off.

On your journeys you will discover scrolls with useful information concern-

ing your mission. Sometimes they bring blessing and occasionally curse. In fact, you come across all sorts of goodies on your trek. Shuriken or ninja stars come in handy against archers. Gems and potions are rare but worth gathering.

Targhan himself is agile and responsive, however he can become dazed and sluggish when wounded. After a number of injuries Targhan dies. Game over, and back to the start for "the one who will come back."

Battle sequences look great, and control is simple and direct. Targhan can be controlled from either keyboard or joystick. I found the keyboard best, but to each his own. The game is technically perfect - there is nothing to complain about - nothing distracts you from your quest, apart from the mean guys who are out to stop you.

The terrain and the background action are magic. The countryside you pass through is varied, from clearings to fo-

rests, from dungeons to mountains, each with their own characteristic perils. The remains of some pretty frightful creatures are left lying about just to give you an idea what is before you.

The temple and palace region are elaborate and dangerous. It gets easier and easier to get lost as you get deeper into the game. It's then that you remember Athna-An's warning - "make sure you can bring the gift back to your people." Next time I cheated a bit and drew a map as I went. Very handy.

Every now and then you'll come across a statue of the god of warriors or some roughly equivalent title. At these points you can save the game. This is great, since you can save and continue, and if you should die you may start from the moment last saved.

Targhan is a real challenge, and must rate as one of the best action-adventure games yet released. It requires skill, a little planning and deduction to work out your precise goal and destination, but it's great entertainment.

Thoroughly recommended. □

Review copy from Computermate (02) 457 8118. RRP Amiga \$39.95, IBM \$49.95.





Phil Campbell plays the greatest shoot-em-up yet. How does he feel? Absolutely mind-blown!

POLISH UP YOUR joysticks, sharpen up your reflexes, and fasten your seatbelts. It's all happening. You're about to save the galaxy as it has never been saved before. Sure, you've seen some superb graphics in your time. Sure, you've heard some classy sound-tracks. You might have even indulged in the odd bit of incredibly fast gameplay. But you have never - and I mean never - encountered anything to match *Xenon 2 - Megablast*.

This game is hot! Graphics are top

class. Gameplay is top class. And the music? Well, what else can I say? Top class.

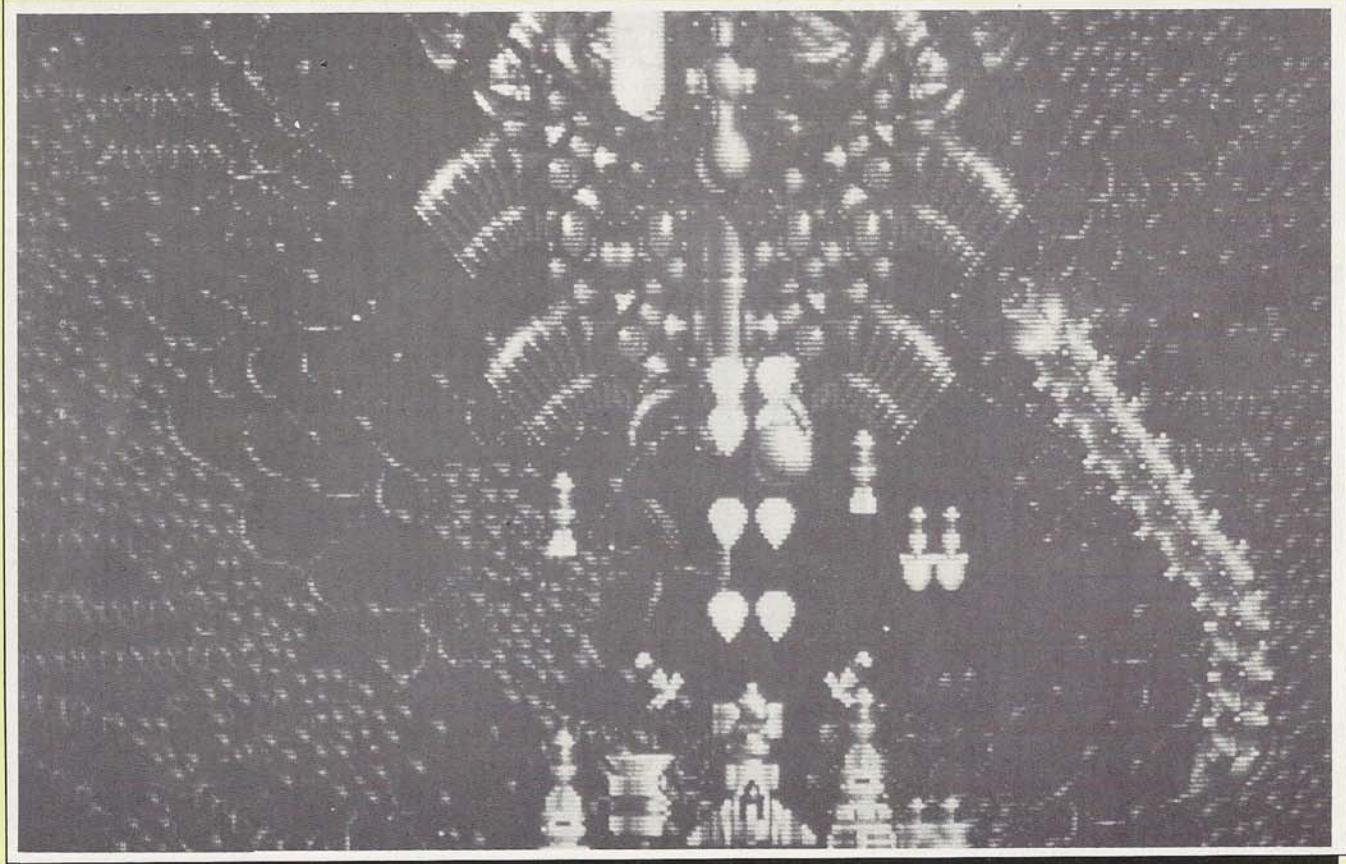
The soundtrack is in fact a mega-bop digitised creation of the popular British band "Bomb the Bass." The rhythm is strong, the bass line is cool, and the whole thing sets the scene nicely. There are even vocals!

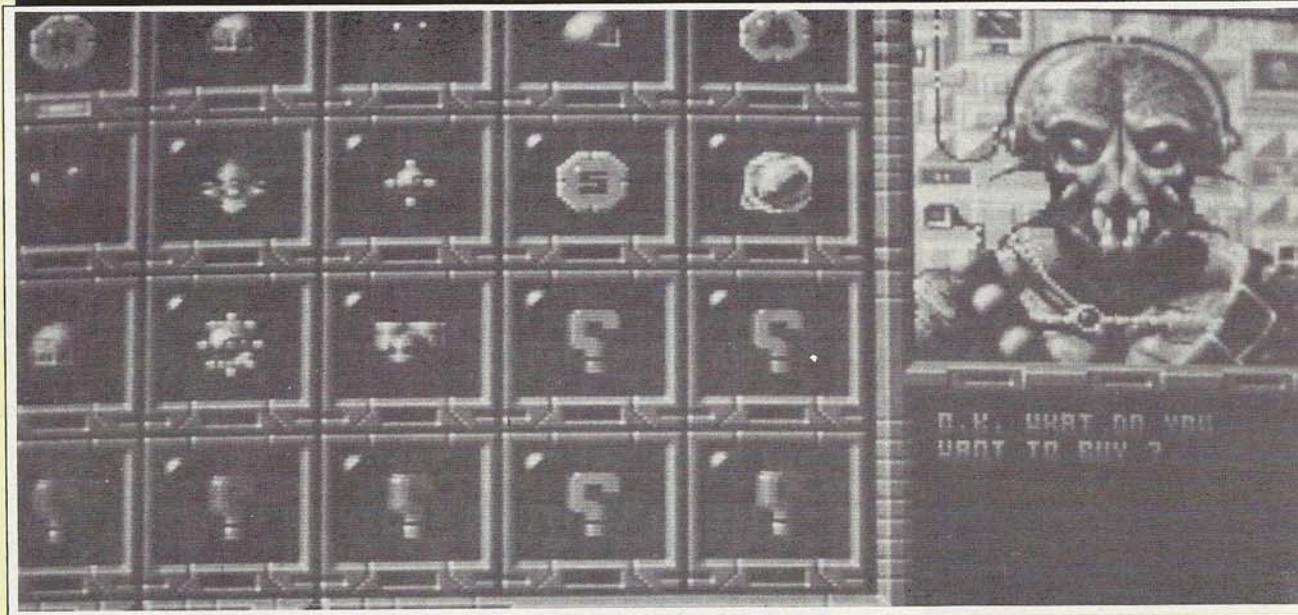
The screen layout is not unusual. You could call it a stock standard vertically scrolling shoot-'em-up. Your ship, the Megablast, begins at the bottom of the

screen. The joystick moves it up and down and left and right - all the usual stuff. The only thing that distinguishes *XENON 2* from hordes of other games of this ilk is its quality.

The vertical scrolling, for example, is three levels deep. The lowest level is a starscape, a spattering of illuminated dots against the inky blackness of the sky. In level 1, this is overlaid with a menacing looking web, a complex network created by a huge cosmic spider. The playfield is immediately above the web - rocky outcrops form a channel for your ship and provide the third level of parallax scrolling.

The action starts almost immediately - wave after wave of beautifully crafted





alien bugs cascade down the screen. There are giant Christmas beetles with trailing sting-like tails, there are huge segmented snakes, there are even giant fleas. As each wave is demolished they leave behind floating bubbles - capturing these gives you credits for trading at the "shop" you will find at the end of each level.

The shop keeper is an ugly dude - humanly speaking - with multiple horns and a menacing burble for a voice. He displays a "Sale-of-the Century" style board full of goodies that you can purchase with your credit points. You may like to buy some extra speed, a backward firing laser, extra health points, or even a burst of "super-Nashwan power," a 10 second foretaste of the power of a fully optioned ship.

So far, I have made it to the end of level 1. A huge end-of-level nasty was waiting for me, sort of a snail with fire-breathing snakes dangling from its underside. Quite a number of well placed shots are needed to get to level 2 - I made it, then survived another second or two. The first level is hard - the second is almost impossible. Then again, who knows what I'll be able to do with a bit of practice.

There are five levels in all, so *Xenon 2* will keep me occupied for a long time yet. The gameplay is addictive, the graphics are superb, the sound track is riveting. You think I'm impressed? You bet. If I've played a better shoot-em-up than *Xenon 2*, I can't remember when.

Distributed by Ozisoft, the Amiga

version of *Xenon 2* has a recommended retail price of \$59.95. If you like a good blast, don't delay. Add it to your collection.

Meet the programmers

The *Bitmap Brothers* are the guys responsible for *Xenon 2*. Judging by the photo alone, they are definitely cool. Their programs leave you with no doubt as to their talent, especially in the arcade shoot-em-up arena. Even so, they say they are getting a little bored - "If we do another one, it will have to be completely unlike anything that has been done before," said a spokesman. I'm looking forward to it! □

Distributed by Ozisoft (02) 313 6444.
RRP Amiga \$59.95, C64 disk, \$35.95.



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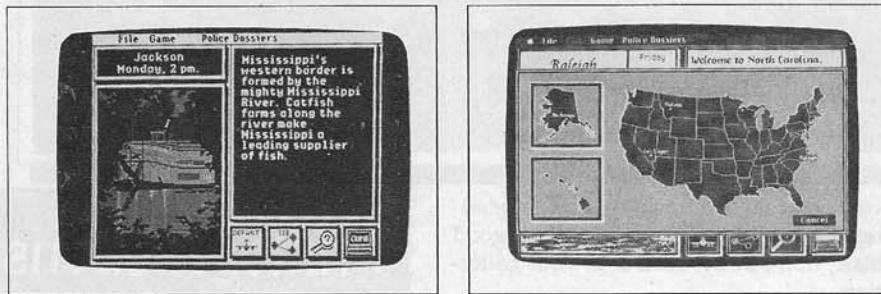
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WHERE IN THE U.S.A. IS CARMEN SANDIEGO?

AMIGA



Where in the world is Phil Campbell? Hot on the tail of Carmen Sandiego, of course, as he files this report on the latest edition of the "most popular game in the world" ...



CARMEN SANDIEGO IS a household name. Mention her to anyone under 11 years old, and chances are they will know exactly who you are talking about.

Carmen is the star of the most popular series of computer games in the world. It all started with *Where In The World Is Carmen Sandiego*, an adventure-style thriller that somehow convinced kids that geography and deductive thinking could be fun. Carmen was the leader of a ruthless gang of jet-setting crooks who set out to steal all the famous landmarks of the world. Your job, as an employee of the Acme Detective Agency, was to track them down and put them away.

The game had style, charm and wit. It is still considered something of a paradigm - the perfect example of what educational software can actually achieve.

A few weeks ago I visited a small country school - one room, one teacher, one Apple IIe computer, and children everywhere. The class project was proudly on display - a huge map of the world with lines tracing out their travels in pursuit of Carmen and her gang. Drawings of famous landmarks added some colourful touches. The enthusiasm of the children was obvious - the project was "alive" and still growing.

The original Carmen was followed by a sequel called *Where In Europe Is Carmen*

Sandiego. And now there's another - *Where In The Usa Is Carmen Sandiego* has just been released in all popular computer formats. I tested the Amiga version.

The game arrived in a surprisingly heavy box. I soon found out why - a copy of the 880 page Fodor's USA Travel Guide was included as standard equipment. The book lists absolutely everything you ever wanted to know about the USA, and I can guarantee that you won't get far without it.

The game begins with an animated sequence showing Carmen and her gang breaking out of a prison "somewhere in Europe." They're on the loose again, and they waste no time getting back into their landmark-stealing lives of crime.

The computer terminal at Acme Detective Agency springs into life ... "Bismarck: Sitting Bull's Blanket was stolen by a masked female. Your assignment: track the thief from Bismarck to her hideout and arrest her. You must apprehend the thief by Tuesday 7 a.m."

I glance at my digital watch. It's 7.03 on Wednesday morning. Six days to track a thief around the USA. The screen clears, and I find myself in Bismarck, North Dakota. On the left is a colour snapshot of a towering wheat silo set against a cloudy sky.

On the right of the screen is a text-window displaying a welcoming mes-

sage together with some facts and figures about the area. Control icons are arranged along the bottom of the screen - I select the "Clues" icon and start to question some eye-witnesses.

"She said she planned to scale Mohegan Bluffs. She was eating sashimi," says the attendant at the health club. "She asked for a street map of Newport," says the Desk Clerk at the auto club. "She asked for a biography of Roger Williams," says the librarian. All good clues, if only I knew what they meant.

A quick look at the airport time-table tells me I can fly to Las Vegas, Providence, Little Rock or Atlanta. But which one do I want? It's time to consult my trusty Fodor's. After plenty of page flipping I discover that Mohegan's Bluff is near Providence, Rhode Island - I jump on the next flight, and arrive by 7 pm Wednesday night. So far so good.

"Welcome to Rhode Island, the Ocean State," says the message on my screen. "Rhode Island is the smallest state in the U.S. It measures 48 by 37 miles. Its state bird is a chicken, the famous Rhode Island Red." Very interesting. But what about some clues? More questioning, more hot leads - the state on the Southern Shore of Lake Erie, the Finger Lakes, Cumberland Gap, Grant's Tomb. Finally, I catch up with my criminal prey.

By now I have picked up enough clues to identify her as Polly Esther Fabrique - data is entered into my portable crime computer, a warrant is issued for her arrest and it's all over. One down, fifteen evil henchmen to go. And then on to Carmen herself.

Where in the USA is Carmen Sandiego is a lot of fun - a worthy sequel to the most popular game in the world. On my Amiga the graphics were delightful. Sound effects were sparse but effective - just right for the classroom environment.

And by the way - keep an eye on your local landmarks. I hear Carmen may soon be heading for Australia. □

Distributed by Dataflow, RRP Amiga \$84.95, C64 (disk) \$69.95.

Stunt Car Racer

Frustrated boy-racer Tony Smith buckles himself into the seat of a turbo boosted stunt car ... get ready for some thrills and spills!

EVER BEEN TO Australia's Wonderland and seen the Roller Coaster? Do you like daredevil rides? If so, *Stunt Car Racer* is the game for you. Imagine driving a powerful V8 Stunt Car around a roller coaster and you come close to the scenario. The courses consist of eight separate tracks from the little ramp to the (you guessed it) roller coaster. In between are such treasures as the high jump, ski jump and the stepping stones. Each track is cunningly arranged to test your skill and patience, with plenty of computer opposition to dice with.

This game comes from the creators of *RVF Honda* and will surely rocket to the top of the charts for its playability and realistic feel. Starting at the bottom of division four, it is a long hard battle for fame with a dejected driver sitting with his head in his hands shown to you many times before you taste the joy of victory.

Graphics are simple and uncluttered, no doubt to save on memory and keep the speeds high and the joystick responses quick. Tracks are shown before the race or practice session to give you an idea of what's in store. On the screen is a view along the top of a huge V8 motor, apparently fuel injected and fitted with a button controlled turbo charger. In front, the track goes into the distance and a roll bar is over the top of the screen, a nasty crack travels across the roll bar and when it reaches the other side, your trip is over. Three cheers for the producers of this game for making it memory resident. The only time the drive comes into action is when saving or loading a saved racing season; more games should be like this.

A quick trip around one of the tracks is in order. Starting on the Big Ramp, the crane lifts you onto the elevated start line and drops you to start the laps. A push of the turbo button and the car accelerates smoothly up to 200kmh. Over the undulations the engine revs realistically every time the wheels leave the ground. Into the first left-hand corner, the suspension thumps and bangs as the strain is taken,

the crack inches across the screen.

Coming up to the first ramp, entry speed is critical to good landings, so around 170 is good. Flying through the air, the wheels touch down momentarily and the throttle is applied quickly to gain speed for the next identical ramp. Landing smoothly, the turbo is used to pick speed up going round the next corner, ahead looms the Big Ramp, keep the car straight, full speed ahead. At least 200kph is needed to clear this ramp, stomach churning you fly ever onwards, hoping for a landing. Usually the scene is more like this: "Missing the side of the ramp, the motor revs uselessly, the sky spins and the sides of the track rush by, with a sickening crash you hit bottom and bounce up again, coming to rest in a cloud of dust and noise, quickly the crane hooks chains to the car and you are unceremoniously dumped back onto the track."

This is one of those dreaded "just one more go at 2 am" games. The sound effects are excellent although the crash noises seemed to go on a bit sometimes, the suspension and engine noises really fit the bill.

Personal satisfaction is very high with *Stunt Car Racer*, even successfully completing a lap on some of the hard courses gives you a buzz. Finishing first and setting a new lap record puts you over the moon.

The computer controlled opposition is hard to beat because he never crashes,

it is possible to win after having one crash, but any more and you will surely lose. An interesting exercise is to follow closely behind the other car and watch how often it leaves the ground. Although the car is blocky and undetailed, the suspension works well and the action is realistic. Your suspension, on the other hand is beautifully detailed with working springs and detailed, smoothly animated tyre treads.

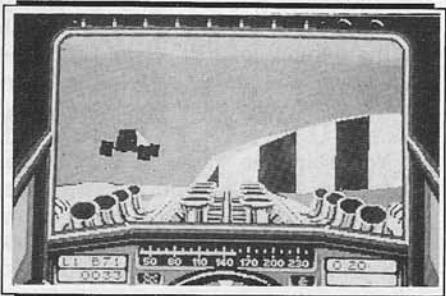
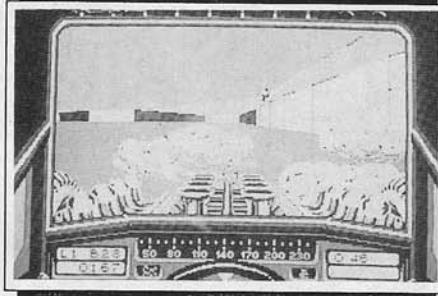
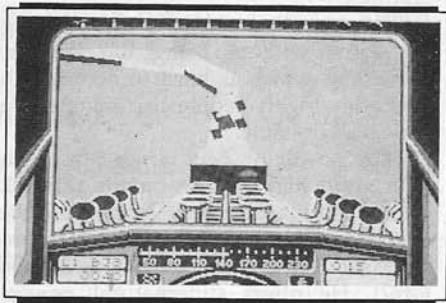
Stunt Car Racer, my favourite game of the month, is guaranteed to be a big hit with the boy racers, large and small. Keep it up, Microdeal, and well done.

C64 Comparison

The Commodore 64 version compares well with its 16 bit big brother - all the action is included, with identical track layouts. Animation is not quite as fast and smooth, though you'll get the same challenge and gameplay. All in all, a great effort.

Review copy from Questor (02) 662 7944. RRP Amiga \$49.95. C64 disk \$39.95, cassette \$29.95.

AMIGA C64





Tony Smith battles all kinds of nasty things in his efforts to save a beautiful princess. Come with him as he enters the eerie world of Altered Beast ...

A NEW RELEASE from Activision, *Altered Beast* comes across as a *Ghosts'n Goblins* type of game, horizontally scrolling with lots of zombies emerging from their graves, flying foes and things to collect.

But playing the game soon shows its superiority to its predecessor. The sprites are large and well animated, and at times there are so many moving objects on the screen at once that the processor should be slowed down - but they just keep on coming.

The package is well presented with adequate instructions and a well animated and not too drawn-out intro sequence, showing some extremely smooth animation of a pair of eyes and some nifty graphics.

The tune is catchy and plays during the game without being too tedious, something which is hard to accomplish these days with people becoming more critical all the time.

The power of Zeus drags you from your grave and bestows on you the task of rescuing his daughter Athena from the clutches of the evil Nelf, lord of the underworld (where have we heard that before?). He offers supernatural powers such as Strongman, giving more punching and kicking power, Werewolf and Weretiger allowing you to "Rip the flesh off the demons of hell" (I told you the docs were "adequate") and lastly "Bear-breathe" to literally blow your foes away! Yuk.

You start the game in an outdoor landscape. Attacking you are two types of biped, a quadruped and a wasp - nothing serious. Monoliths rising in your path can be punched or kicked. If a sphere appears, grab it quickly before it

floats tantalizingly out of reach. These contain the power of the supernatural, so you're going to need them.

Mouldering zombies fall apart realistically when hit, the four-legged animals can be kicked whilst lying on the ground and the wasp is extremely hard to hit. Joystick control is brilliant, with a multitude (14) of possible actions, all of which are executed smoothly and quickly by the highly detailed figure, or figures, if you have chosen the excellent two-player mode.

Level one ends with the mandatory end-of-level guardian. When attacked, he turns into a rock monster and starts hurling heads at you (weird). If you can destroy the monster, a spectre appears and you disappear down a hole to the underworld. In the green grottos, a new peril awaits. Along with the usual rash of monsters are huge snakes which go from

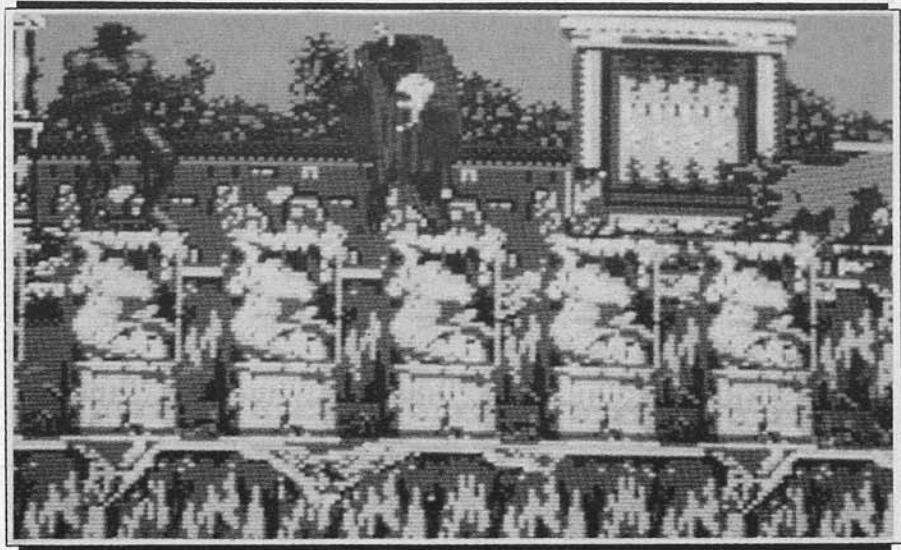
top to bottom of the screen. Well placed kicks destroy the snakes as they emerge but the other vermin are thick too, meaning sore trigger fingers on this level. Watch out for the rocks which suddenly jump up and clamp themselves onto your head before neatly biting it off!

The E.O.L. Guardian on this level casts eyes at you and is very tough to kill. The next level sees the insertion of disk 2 and the loading of a whole new set of sprites. Following the spectre leads you to a red world with strange running creatures with even stranger appendages running furiously about and being hard to kill. There are things with beaks and kangaroo's rear ends and giant tortoises with viscous hooked jaws and rocks for shells. Every shimmering globe must be caught if you are to rescue Athena - and there is a long way to go.

Destined for the hit parade, *Altered Beast* is a fine example of the state of the art in computer games. The game is beautifully presented, offering a wide range of actions, a varied and colourful landscape, good music and sound effects and a challenge which will keep the most dedicated player at the controls for hours.

In fact the only thing I could complain about is the wasted space at the bottom of the screen, about 25mm of blank left from the change in TV standards, but I suppose the game is for the world market, so we will just have to put up with it. It is no reflection on the game itself which is brilliant and a far cry from the old *Ghosts'n Goblins* which was also brilliant in its day. □

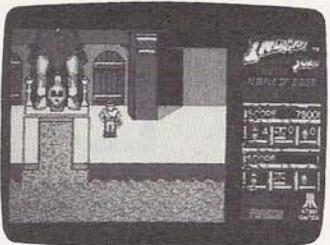
Distributed by Ozisoft (02) 313 6444. RRP Amiga \$59.95, C64 disk \$35.95, cassette \$26.95.



Indiana Jones and the Temple of Doom

by Tony Smith

AMIGA



IF YOU HAVE seen the action adventure movie of the same name as this game, then you will know what is in store. The scenario is the same as the movie. Whilst on an archaeological expedition, Indiana comes to the village of Mayapore in India. Here he discovers the ancient ruins of a temple and discovers that many local children have been imprisoned by the evil wizard in the catacombs of the temple.

The loading screen shows that it is an Atari conversion, this also is reflected in the colouring of the first screen. Whoever heard of an Amiga game with a four colour backdrop? Gripe aside for now, the game itself offers more for the player. Upon loading, your well-animated man appears with his whip, smoothly turning and whipping in all directions he appears to be a formidable foe. Three doorways beckon, easy, medium and hard.

The three routes are each more perilous than the one before with three levels of games inside each doorway. Entering the door (easy of course) leads to a fairly uninspiring exploration and platform game containing cobras, bats, wizards with fireballs and piles of bones. Zapping

all the attackers with your trusty whip gives a point score and whipping the locks off the children's cages gives even more points. The children are hidden in various places around the map and are very grateful for their release.

Soon our hero comes to the mine entrance. Fearlessly entering the tunnel he climbs aboard a rickety carriage and suddenly you are in control. Leaning to the left and right lifts the wheels and passes over sections of track which are missing, pulling back on the brakes slows the wagon, allowing other traffic to smoothly blend onto the tracks. Note that the other traffic is all out to get you and can be destroyed by landing on top of it.

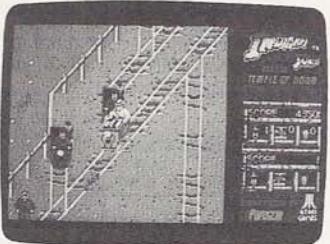
The pace increases till you reach the bottom and if you make it this far you are given a chance at level three. The task now is to scramble across the sliding platform over the flaming pit, timing your run so you can grab the jewel-encrusted idol from its perch above the fire. Should you successfully complete the challenge, it must be then completed twice more, each time more difficult until the jewels are all obtained.

If Indy collects all three jewels, he

must escape across a rope bridge while ducking fireballs hurled by the evil Mola Ram. Nine levels are available with the last couple being extremely difficult. All levels are made from a combination of the three backgrounds with more and more meanies on each one.

Some of the Indiana Jones games coming for the Amiga look incredible and at last count there were three, two platform arcades and a graphic and text adventure. Unfortunately the graphics of this game are lacking in detail and on the Amiga this is a shame; the sound is rather limited but the game itself is very playable and has the 'just one more go' addiction quality. At over \$60 this is a game you should try before you buy.

Review copy from Mindscape Pty Ltd (02) 899 2277. RRP Amiga \$69.95.



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Dark Side

Intrepid reporter Luke Tattersall travels to distant parts of the universe to check out **Dark Side**. Not content to simply give the game a quick try-out, Luke kept playing until he won ...

HAVE YOU EXPERIENCED the Dark Side? No, *Dark Side* is not a game for those interested in the occult or witch craft (unlike most games these days!) The Dark Side in the title is the Dark Side of the moon "Tricuspid".

On Tricuspid is a Ketar, a device designed to gather enough energy to send a lethal laser blast to the nearby planet Evath.

Scattered around the moon's surface are a number of ECDs (Energy Collection Devices) which feed power to the Ketar. Your task is to wipe out all the ECDs before they gather sufficient power to destroy Evath. The more ECDs you destroy the longer it takes to generate the power. Knocking out a few ECDs right at the start will extend your play time.

Sounds simple? Well, let me tell you it is not that easy. Each ECD is connected to others by a matrix of cables. You can only destroy an ECD if it is not in between two "active" ECDs. This means that the ECDs must be destroyed in a sequence. If you shoot an ECD that is in between two "active" ECDs then it will regenerate and continue to feed the Evath.

The final ECD is hidden behind a sliding door. To open that door you must collect and piece together the letters D A R K. You pick up the letters in different sections of the planet and you must find a Teleporting Crystal in order to obtain each letter.

During your mission you must keep an eye on your FUEL and SHIELD levels. Your fuel is consumed by the jet-pack on your back and the shield is depleted each time you bump into things or are hit by the alien craft. If they are running low you need to replenish them at one of the storage points around the planet.

Conquering the *Dark Side* is not simply a matter of blasting your way from beginning to end. You need to be constantly thinking about how you can achieve your mission. This is the sort of game that has you lying in bed when you have given up for the night saying "I wonder what would happen if...?".

Dark Side uses the very impressive *Freescape 3D* to give the impression of actual movement. Rather than jerking from frame to frame as most 3D games do, you are able to view the area as you rotate around. While the graphics may be little blocky and perhaps not very realistic, you soon put that out of

your mind as you are consumed by the 3D effect of *Freescape*.

The sound effects of *Dark Side* may be limited compared to other games but complement the game very well. The sounds include the noise of your flying, shots you fire, enemy craft as well as a few other cute little noises. There is no music backing to the game but the quietness gives an eerie feeling that seems to suit the game.

Dark Side comes with a very comprehensive and usable guide. It tells you all you need to know about the game and the opening story really gets you into the mood of what is happening.

Dark Side is a brilliant 3D Action/adventure game. I thoroughly enjoyed playing it from the moment I switched it on - it takes no time at all to get into it. The Freescape 3D really makes you feel like you are there. This game has tension and action, and it keeps you thinking about how to solve the problems that you come across. Having played and beaten *Dark Side* I have no hesitation in recommending it. □

Review copy from Questor. RRP Amiga \$49.95.



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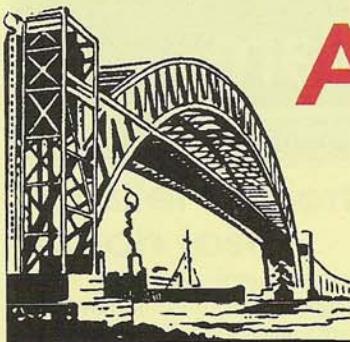
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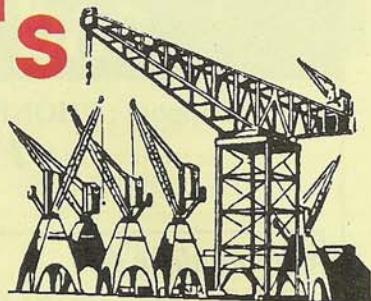
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Adventurer's Realm

by Michael Spiteri



HELLO! WELCOME TO the Realm, Australia's only column dedicated to helping those who dare to ponder adventure games on their Commodore and Amiga computers. The address to write to for all your adventure queries and hint sheets, as well as help and problems, is

Adventurer's Realm
1/10 Rhoden Court
North Dandenong
Vic 3175

(Those of you smart enough to decipher my phone number, please don't ring as I work various shifts and can be very hostile when woken from deep sleep!!!)

● Kamikaze Andy is in charge of keeping everybody happy as far as role playing games are concerned (*Bard's Tale*, *Ultima*, *D&D*, etc), and he can be contacted at the following address:

The Dungeon
44 Hawkesbury Drive
Willetton
WA 6155

(Kamikaze Andy does not have hint sheets!)

● Finally, we do also cater for war gamers (*Russia*, *Silent Service*, *War in the South Pacific*, etc.) via wargame freak Barry Bolitho. The address:

Wargame Section
1/10 Rhoden Crt
Nth Dandenong
Vic 3175.

Free hint sheets

● Everyone who reads this article is entitled to 10 free hint sheets of their choice. Coming soon: The Official Adventurer's Realm Hint Book. (Watch this space for more info!!)

- Bards Tale 1,2,3
- Zork 1,2,3
- Hitchhiker's Guide
- Hampstead
- Hobbit
- Castle of Terror
- NeverEndingStory 1
- Adventureland
- Borrowed Time
- The Pawn
- Pirate Adventurer
- Deja Vu
- Dracula

NOTE: Always enclose a SAE when writing to the Realm!!

missing inmate in his asylum, but has also received letters from a distressed friend regarding boxes of earth and the undead!

● The horror continues in the third game, *Wolfman*. Also three parts, this one is not only a horror story, but also a tale of romance and adventure between maiden Nardia and Mr Wolfy. You get to play both characters in this well thought out adventure.

● Finally, we step down to slight reality in the last game, the recent *Jack the Ripper*, a game based very closely on the facts available of the famous rapist that stalked London throughout 1888, and you get the chance of investigating the incidents.

All the games feature superb and very "graphic" graphics with some sound thrown in too. The first three games feature the standard two word entry parser, while *Jack the Ripper* allows full sentence

New year adventure gift packs

● It doesn't take long to glance through this magazine and notice all the wonderful game packs available to arachnids, packs containing classics of yesteryear. Well, I recently received two excellent adventure packs which offer some true classics packed together at excellent value.

Gift Pack 1: Terror (For the Commodore 64)

● Wow! How about this for a combination! CRL have put together their four horror classics to really keep you up shaking in the wee hours of the morning. (Does that mean you'll wet yourself with excitement? [ed])

● First up is *Frankenstein* - a three part adventure in which you get to play

Doctor Frank and his beastly creation. Part one has you playing the doctor when he arrives in Switzerland to hunt down the monster he created four years earlier. Part Two leads to the actual confrontation with the beast, and Part Three is titled *The Monster's Story*, in which you play the beast who is trying to put together what and where he is from the vague images in his mind!

● The second game is the all time classic *Dracula*, a game that has reared its ugly head many times in the Realm, and eventually prompted a hint sheet to be created. *Dracula* is a three part adventure. In the first two parts you play a young solicitor who has to sort out legal stuff with Drac's house - but nightmares and evil prevail! In the third part you play a psychiatrist who not only has a

es. Some of the games will not let you play parts without completing earlier parts. The package comes with brief but adequate documentation, and I believe represent excellent value for money and hours of enjoyment. You will definitely not be disappointed.

Note: The graphic content of these games makes them unsuitable for minors.

Gift Pack 2: Adventurers 1-12

• Those of you who have been playing long enough to remember a man who revolutionised adventure games, Scott Adams, will be delighted with this offering. The pack contains all of Scott's original classic series - 12 to be exact. These are:

1) **Adventureland:** A shrunken down version of the original adventure that

started it all, has you searching for various items of value.

2) **Pirate Adventure:** Travel to a treasure island and explore!

3) **Secret Mission:** (Originally titled Mission Impossible) Search for and defuse a timebomb!

4) **Voodoo Castle:** Discover a curse and raise the dead!!

5) **The Count:** Search and destroy Count Dracula!!

6) **Strange Odyssey:** Stranded on an unknown planet!

7) **Mystery Fun House:** Recover hidden plans from a trap-ridden carnival fun

house - great fun and frustration!!

8) **Pyramid of Doom:** Collect treasures scattered in a Pyramid!

9) **Ghost Town:** Chance to recover treasure from a dead western town.

10) **Savage Island Pt 1:** Search for the password for Part II.

11) **Savage Island Pt II:** A toughie full of a curious mix of prehistoric and space age entanglements.

12) **Golden Voyage:** Search for a youthful potion to help a dying King.

This pack has to be the ultimate gift to adventurers; for their time, they were the best in the world and deservedly became golden classics. The games range from the simple for beginners (*Adventureland, Pirate, Voodoo and The Count*), to the downright impossible (*Savage Island*).

All the adventures are fairly small but with very well planned problems and red herrings, and simple to use parsers. The manual is full of hints and tips, as well as a list of accepted words.

If you like playing adventure games, then you shouldn't need to read this review to rush out and buy this product. You'd be very silly not to. Another winner from Pactronics (02 748 4700). Also available for the Commodore PC. □

New Releases - New Releases - New Releases

• Just when people were saying the adventure is dead! A new decade of adventure games has begun, and two games (to be reviewed over the next two months) have just been released.

• From Pactronics comes *Dream Zone*, an adventure featuring great animated graphics and sound with a good plot. The game takes you travelling into a strange land in your dreams, filled with weird and wonderful characters!

• Then from Questor is *Time*, an animated adventure with sound that takes you travelling across time. I'm still trying to work out the time machine, so hopefully I'll progress by the time I do the review.

• Two very promising and impressive games from Australian companies that never stop bringing out adventures. Both available now.

Questor's Adventurer of the Month

• I announced this section in Decem-

ber. Those great guys and gals at Questor are now giving a free copy of the latest hit to the Realm's adventurer of the month, but you have to do something really good to win it (like rewrite *Beyond Zork* blindfolded). Actu-

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Adventurer's Realm

ally you could win it for donating heaps and heaps of tips for current troubled adventurers, or sending in a few hint sheets.

Be quick, this offer won't last long!!

Realm's Clever Contacts

• The following people have offered their services in helping out troubled adventurers. Enclose a SAE when writing to them. If you would like to be a clever contact, just send me your name and address and the list of games you can offer help in. Finally, thanks to all the clever contacts!!!

Name: A. Stivala

Address: 6 Schey Place, Spence, ACT 2615

Help Offered: Trinity, Hitchhikers Guide, The Hobbit, Castle of Terror, Maniac Mansion,

Lords of Time, King Solomon's Mines

Name: David Lear

Address: 7 Glenalvon Drive, Flagstaff Hill, SA, 5159

Help Offered: Boggit, NeverEndingStory, Dracula, Ring of Power, Eureka Prehistoric, Subsunk, Mindshadow, Wizard of Oz, Zork 2.

Also, Kamikaze Andy has offered assistance on most disk based adventure games. Write to him at his Dungeon (but don't ask for Hint Sheets!)

Realm's Chit-Chat

• Reg O'Grady of Waverley in NSW writes....

"I have had *Tass Times* in *ToneTown* for the

C64 ever since it was released. When I bought it, the save game facility didn't work and after much toing and froing with the distributor I was told the program was faulty and that this facility did not work.

I recall reading somewhere that there was a way of getting the save-game facility to work with pokes of some sort.

I will not be able to finish this game unless I can save the game at appropriate stages. Would you or any of your readers know of a way to enable the save game facility, please?"

MS: Reg, I think the distributor was having you on, as my *Tass Times* saved games fine. Keep hassling them until they give you a replacement. Meanwhile, can anybody else help Reg?

feature improved graphics and gameplay.

• That's all for this month's Realm. Lack of space means I can't print the usual swag of help and problems, but this just means there will be double next month. Don't miss the next Adventurer's Realm. Until next month, farewell!

The Dungeon by Kamikaze Andy

Heroes of the Lance

(For the C64 & Amiga)

Distributed by ECP

• *Heroes of the Lance* was the first product released by SSI after their million dollar deal with the license holders of the AD&D label. Surprisingly, *Heroes* is more of an arcade-adventure than a real RPG.

The Amiga version of the game was released over a year ago, and now the C64 version is available. So, pack your brass lanterns and sharpen your swords, as we descend into yet another slime filled labyrinth.

In the game you control a party of eight characters, made up of two mages and six fighters, in exploring the dungeons of Xak Tsaroth (try saying that six times without stopping!) for the fabled Disks of Mishakal.

Only with the recovery of these disks can evil be stopped from corrupting the land of Krynn. The dungeon itself is filled with pits, traps, and many nasty creatures such as trolls, draconians, people (yes, them too!), and giant spiders. There is also a final confrontation with a big black dragon named Khsanth, which you must defeat in order to retrieve the disks. It is essential that the character Goldmoon is leading the party at this time (hint hint).

The programmers (not SSI, but US Gold in UK) decided to utilise horizontal scrolling as the means of visual presentation. Graphics on the C64 are only average with some blocky characters and jerky animation. The Amiga version, as expected, features better technical qualities, including an excellent soundtrack. Be sure to save the game often, as your characters tend towards rigor mortis very easily. High scores are saved on disk and the manual serves as copy protection from those vile nasty pirates.

The joystick is the mode of control in both versions, and this can lead to various problems. First, it is very s-l-o-w in its response to your intentions: This can be fatal in combat with the baddies. Another, more major, problem with this game is the replay value, or lack of it.

Once you have finished the game (not too hard for seasoned gamers), you will never ever want to play it again! I would even venture to say that only a die hard masochist will want to play *Heroes* twice!

Overall, I would caution those who rush out to get *Heroes* just because of its links to AD&D label. Definitely try before you buy on this one. Some of you may like the game (if you do, I salute you!), but the serious role-players out there probably will not. The sequel to *Heroes* has just been released on the Amiga and C64, and hopefully *Dragons of Flame* will



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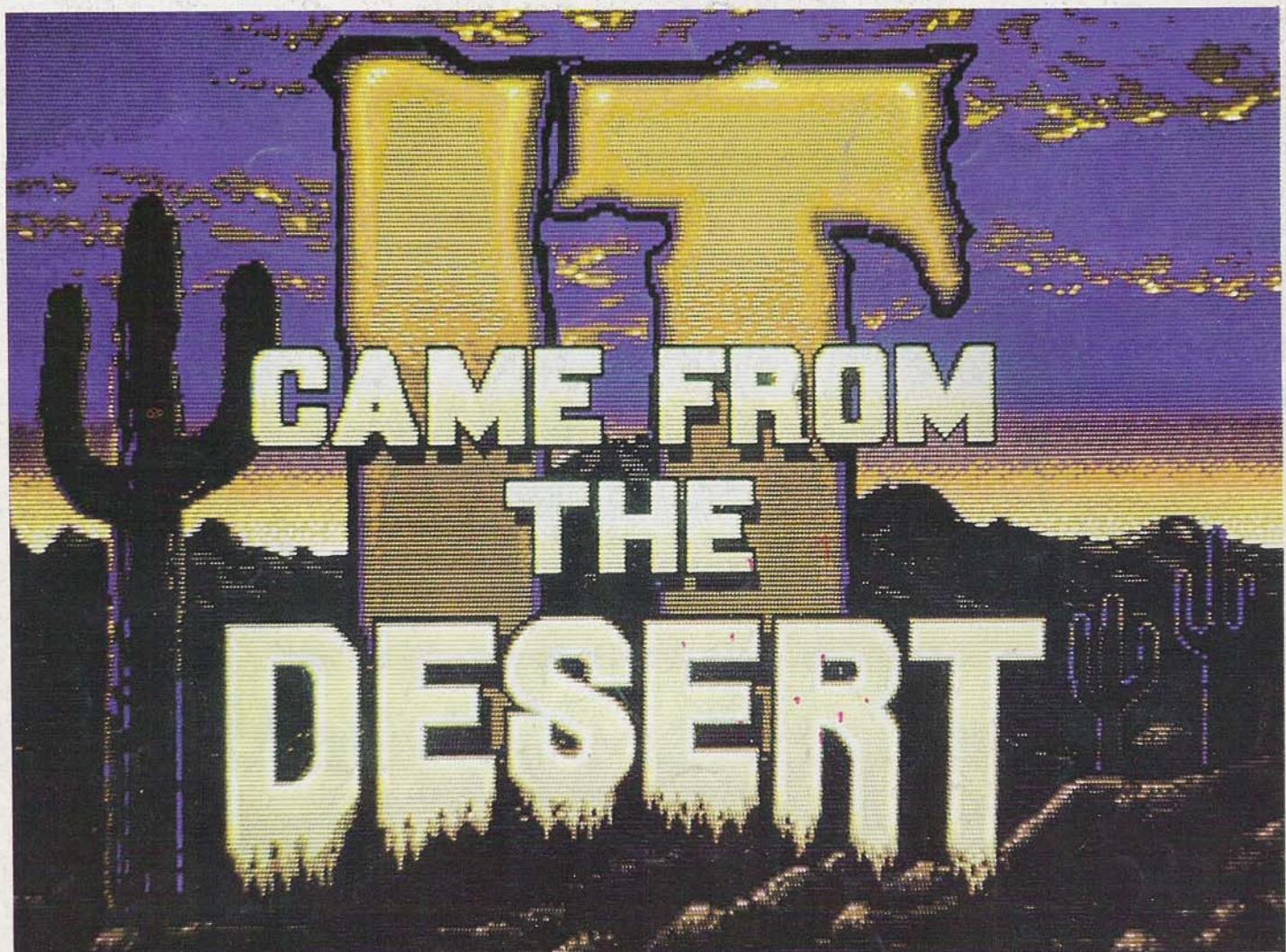
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